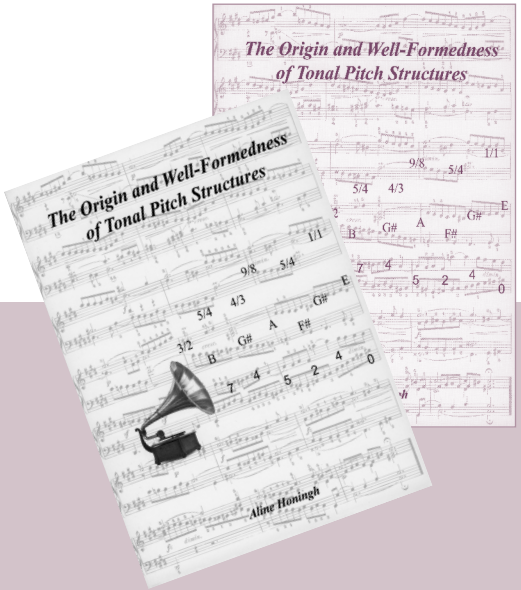
Logic & Language

Institute for Logic, Language and Computation

Annual Report 2006



Language & Computation

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Universiteit van Amsterdam

Institute for Logic, Language and Computation

Annual Report 2006

UNIVERSITEIT VAN AMSTERDAM

Amsterdam, June 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. What we envisage is an information science that is concerned with information flow in natural and formal languages, as well as many other means of communication, including music and graphics. The research aim is to develop logical systems that can handle this rich variety of information, making use of insights across such disciplines as linguistics, computer science, cognitive science, artificial intelligence and philosophy. Whenever relevant, additional methods, ranging from statistics to argumentation theory, are actively pursued as well. In addition to its specific research goals, ILLC aims to overcome traditional borderlines between faculties and disciplines and serves as a rallying point for information scientists across computer science, linguistics, philosophy, and the social sciences.
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 Teaching

As an interdisciplinary institute, ILLC participates in a great number of teaching programmes. In the year 2006 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 60 active students coming from about 20 different countries. The success rate is 80%. The number of students graduated by September 1st 2006 was 78, 55 of which took up a PhD position, either at ILLC (20) or elsewhere (35). The percentage of Master Theses that lead to a scientific publication is 35%.
In 2006 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 assessment team has verified that the programme is in accordance with the subjects and facets of the accreditation framework. Apart from that the assessment team 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. So far, no other master programme in the Netherlands has been rated as highly as this.

1.3 Research

As of January 1st 2006 ILLC's research has been restructured. The following are the three new core programmes:

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

The programmes serve as the main logistic unities in the institute. All contribute to ILLC's two research spearheads for 2006-2010: 'Cognitive modelling', and 'Logic and Games'. As the programme reports in chapter 2 will show, the two spearheads are firmly established as distinctive elements of ILLC's research profile.

In 2006, the 'Language & Computation' programme got a major new impulse by the VICI grant awarded to Rens Bod for his project 'Integrating Cognition: Unsupervised Learning with the DOP Model'. In addition to this VICI grant the 'Language & Computation' programme was enriched with two VIDI grants, one for Khalil Sima'an and his project 'Priors for the Estimation of Probabilistic Grammars from Incomplete Natural Language Data', the other for Jaap Kamps and his project 'Retrieving encoded archival descriptions more effectively'. Two VIDI's and a VICI in one year: it will be difficult to find a research programme in the Netherlands that has been so successful.

The year 2006 brought more new externally funded projects. The 'Projects and Awards' section in this report contains detailed information about all of them.

For ILLC as a whole the most important event of 2006 was the research evaluation performed according to the Standard Evaluation Protocol SEP for Public Research Organisations, as defined by VSNU, KNAW, and NWO.
The review committee, installed by the University Board, consisted of
Prof. Dr. M.J. Steedman, University of Edinburgh, UK (chair)
Prof. Dr. G. Chierchia, University of Milan, Italy, and Harvard University, USA
Prof. Dr. J.W. Klop, Vrije Universiteit, and CWI Amsterdam, the Netherlands
Prof. Dr. W. Pohlers, University of Münster, Germany.
It was the first time that a research assessment was made of ILLC as a whole, and thus the first time that the interdisciplinary character of the institute could be evaluated.
The outcome was extremely positive. The quality of the work, the productivity of the staff, and the relevance of the research programme were all rated as 'excellent', while the judgment on the prospects for the future was 'very good'. In words, the committee's evaluation of the institute as a whole ran like this:

'The Institute for Logic, Language, and Computation is a world-renowned centre for interdisciplinary research and graduate education in its eponymous fields. It is unique in taking logic as the backbone of the broader field. It has created an ideal atmosphere for research, and has mounted a highly innovative Masters' programme which attracts students from all over the world, many of whom continue to PhD. The committee's impression of the calibre of the graduate students and the inspiring environment for graduate study offered by ILLC was extremely positive. The researchers of the Institute have been highly productive in terms of new results, high-quality publications, and grant income. Many are accounted leaders in their field. This productivity includes the graduate students, many of whom have achieved substantial publications and prizes in their own right on the basis of their dissertations.'

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 in which ILLC's administrators have to operate. Roughly put ILLC has twice the administrative overhead of an ordinary research institute. That this situation needs to be remedied, was also noted by the Research Evaluation Committee, 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, and there is a danger that moving ILLC to join Informatics there 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 Muidergracht.'

From this it will be clear what the three main points on ILLC's administrative agenda for 2007 will be: (a) The allocation of teaching resource credit across faculty boundaries (b) The future of the Chair of Computational Linguistics (c) The future housing of ILLC.

1.5 People

In September ILLC could finally welcome Jouko Väänänen as the successor of Dick de Jongh. The new professor of Mathematical Logic and Foundations of Mathematics works on a broad variety of topics in logic. His main interest is in set theory and model theory. He has studied abstract model theory extensively, more specifically generalized quantifiers, with applications in computer science and linguistics. He has also developed a new game theoretical approach to uncountable structures, based on transfinite so-called Ehrenfeucht-Fraïssé games. Väänänen pursues a programme of using games to bring a coherent approach to both generalized quantifiers and infinitary logic, and to logic in general. Väänänen has a continued interest in mathematical properties of second-order logic, and more generally, in questions concerning foundations of mathematics. Recently he has developed the mathematics of a logical theory of dependence. A book on this topic entitled Dependence Logic: A New Approach to Independence Friendly Logic will be published by Cambridge University Press in the spring of 2007.
Väänänen has been employed in the department of Mathematics and Statistics of the University of Helsinki since 1971, and since 1998 as professor of Fundamental Mathematics. Besides, he was senior researcher at the Academy of Finland for an extensive period. Väänänen was guest researcher and guest professor in several universities outside of Finland, among which the Universität Freiburg, Stanford University and the University of California Santa Cruz.

Frank Veltman
Director

2. Fundamental research

As of January 1, 2006 ILLC's research programme is divided into three programmes oriented toward a particular subject matter. Programmes cut across the two faculties that make up ILLC. The 2006 programme reports can be found below.

2.1 Logic & Computation (LoCo)
2.2 Logic & Language (LoLa)
2.3 Language & Computation. (LaCo)

2.1 Logic & Computation (LoCo)

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 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 fix point 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 programmes, 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 2006

The vacant Chair of Mathematical Logic and Foundation of Mathematics was filled in 2006 by hiring Jouko Väänänen from the University of Helsinki.

Games and Interaction
In the year 2006, the Marie Curie Research Training Site GLoRiClass was opened which allowed the group to hire several new PhD students working in Logic and Games.
The group found a dynamic logic for belief revision which can axiomatize revision policies completely in standard compositional style, and which solves the problem of iterated belief revision. This links up between ILLC research on dynamic logics of information flow and major paradigms for updating expectations of agents. This work also ties in with logics for preference structure and ways of changing it, developed at ILLC. A project on a modal syntax for reasoning about mistaken beliefs and belief update in games is now taking the step towards an empirical analysis of its predictive and explanatory power. The group established also a comparison between dynamic-epistemic and epistemic temporal logics, which was presented at AiML, Melbourne 2006.
The group continued its work on multiagent resource allocation and computational social choice. Two examples of this line of work concern combinatorial auctions and distributed approaches to fair division. In collaboration with the Artificial Intelligence Research Centre in Barcelona, the group proposed a generalization of the standard model for combinatorial auctions. In collaboration with the Université Paris-Dauphine, the group analysed under what circumstances a distributed and individually rational negotiation process may converge to an envy-free allocation of resources.
In December 2006 the group hosted the 1st International Workshop on Computational Social Choice (COMSOC).
On the other hand, the group investigated both non-cooperative and cooperative games. For the first class of games the group compared various definitions of strict dominance by mixed strategies for finite games. For the second class of games, in cooperation with the Technological University of Wroclaw, the group studied the problem of existence of stable coalitions for the utilitarian ordering. In a subsequent work the group generalized this study to arbitrary orderings and to hedonic games. In cooperation with Padova University the group continued its research on the comparison of strategic games and formalisms used for reasoning about multiagent systems, by studying the relation between strategic games and soft constraints.

Algebra and Co-algebra
A major event in the programme Logic & Computaion was the start of the project Algebra and Co-Algebra, made possible by the VICI grant awarded to Yde Venema. In November one post-doc and two PhD students came to work for the project.

Computation and Complexity
The group developed a new cryptographic protocol: quantum string commitment; a new fault tolerant thresholds due to unexpected connection with non-locality and the EPR-paradox; an efficient quantum matrix multiplication algorithm, and studied bit commitment in the presence of super strong, but still nonlocal correlations. Research that connects non-locality and fault-tolerant computing appeared in Phys. Rev. Lett. and was highlighted in Nature Physics. The group started implementation of our quantum string commitment protocol, with the experimental quantum optics group at the Niels Bohr Institute in Copenhagen. The group developed the topic of statistical inference through data compression. This work was noted by New Scientist, Slashdot, Die Zeit, Isvestia, and other media. A systematic introduction to constraint logic programming using the Eclipse system appeared as the book 'Constraint Logic Programming using Eclipse' from the Cambridge University Press, a result of cooperation with Monash University. 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 programmes, and related topics in computer science. Wider applications range from graph theory to semantics of natural language.

Sets and Models
In collaboration with the City University of New York the group determined the class of modal statements whose substitution instances are true under the forcing interpretation in all models of ZFC. A paper on abstract model theory for weak languages with a computational motivation was accepted to the LICS 2007 meeting. A book on the new topic 'Dependence Logic', developed by the group, was prepared for publication by the Cambridge University Press and will come out in 2007.
One recent high-light are Turing machines for infinite computation, and their consequences for recursion theory. The group was central in the successful instalment of the new conferences series CiE-CS ('Computability in Europe'). Two of the group members are in its steering committee (one of them is the chairman of the steering committee) and supervised the second and third conferences in the series, CiE 2006 in Swansea and CiE 2007 in Siena. Infinite computation developed into a major theme at the CiE conferences.
While firmly grounded in mathematical logic, the sub programme Sets and Models 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.

The group was influential in editing the 'Handbook of Modal Logic', 1231 pp. which appeared with Elsevier Science Publishers. The work in modal logic got special recognition when the Ackermann Award was awarded to Balder ten Cate for his doctoral work in modal logic.
The group participated in developing a security system for buildings based on WiFi technology. With this system Leen Torenvliet won the 2007 Science Park New Ideas contest and acquired a patent. Currently negotiations are ongoing to develop a commercial application.

Perspectives and Expectations

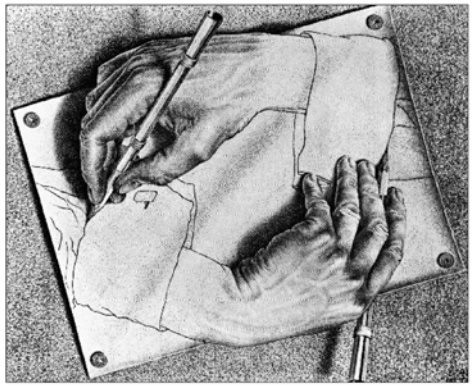
The projects 'Games and Interaction', 'Computation and Complexity' and 'Sets and Models' will continue vigorously in 2007. Both the 'Logic and Games' Marie Curie Research Training Site (GLoRiClass) and the new VICI project 'Algebra and Coalgebra: the mathematical environment of modal logic' start in 2007 their first full year and will pick up momentum. The group will continue to build in its areas of strength. At the same time the new Professor of Mathematical Logic and the Foundations of Mathematics will start building a research group around topics in set theory and model theory, which will enforce the mathematical basis of the group. Two doctors will graduate in the spring term and at least two more in the fall term.

Internal and external cooperation

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, and this will continue this trend in 2007. 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.

The rise of extreme logic

Agniva Banerjee *on how complex maths is getting involved in pizzas and even divorce settlements*



Logic is something that husbands say their wives don't have. But the truth is, real logic, extreme logic, is beyond the reach of most husbands too. Logic runs the world. It is the unseen spirit of all technology. Its complexity is the reason why gambling dens never lose money. It is there somewhere in the calculations of a bank that offers you home loans. The art of logic, its brute force maths, is used even in the making of a perfect pizza. It is also increasingly being used to understand human behaviour.

Johan van Benthem, professor at the Institute for Logic, Language and Computation, Amsterdam, says, "Logic no longer is just the study of how mathematicians prove things or how machines compute. It is now also the study of how information flows all around us, how we humans communicate it and how we act upon it."

RATIONAL MEN

Logicians are piecing together data like voting patters, divorce claims and even pub culture to create mathematical processes that will predict the future with increasing accuracy.

Logical tools are also used for creating positive situations in games such as casino slot machines, blackjack, lottery systems and horse racing. In several casino games, the players as a group can minimise the casino's advantage and maximise their own by following certain basic strategies. Of course, this is not true in the case of games such as roulette, baccarat and pachinko, where the players as a group are net losers. In fact, gambling dens in the US and Europe are a popular hang-out of mathematicians who try out various ways to outfox the mother logic of a casino.

The systems in a casino, products of complex maths, are such that individual bettors may make profits but collectively they will make a loss. Mathematicians constantly use logic to find a way out. They try to see patterns that may lead to interesting solutions and probably millions of dollars. The same is being done with stock market prediction.

In 2002, two researchers from a Dublin college used computer simulation to keep track of the quality of pizza bases and sauce spread. Compared to human monitoring, the methods of Da-Wen Sun and Tadhg Brosnan gave a correct assessment of sauce spread at over 90%. This is part of what is called fuzzy logic, a way of broadening rationality and programming machines to almost think like humans. Fuzzy logic is about making machines see common sense, making them see the logic that humans use while crossing a traffic intersection. The green light does not necessarily mean it is safe to move (especially in India). Humans know that rules have to be followed keeping in mind the ultimate objective. In the case of crossing the road, the first objective of a human may be to cross the road at the right time but the ultimate objective is to stay alive. So other possibilities apart from the green light have to be considered. Fuzzy machines, like some Japanese washing machines, are beginning to do that.

What is the future of logic? "Right now, we are making a step toward the much richer setting of how human agents interact," says van Benthem. "This study of intelligent interaction involves topics such as communication, computation, games, and cognition, and to make it work, researchers from a wide range of disciplines are teaming up. We now need to create a platform that will bring all these people together, from linguistics and computer science to cognitive science and economics, with logic acting as a common language and a shared methodology. Only in this way can we gain a deeper insight into how an intelligent information society works." TNN

'In January of 2007, the Indian logic community held a Workshop at the Indian Institute of Technology in Mumbai on Logic and its Applications with a special focus on the work of Professor Rohit Parikh on social procedures, and its new conceptions of logic and its interactions with related disciplines. Indian experts met with congenial international colleagues, and discussed both the latest trends and the illustrious past of Indian logic.
Triggered by this event, an all-India Association of Logic has just been formed, whose website http://ali.cmi.ac.in/ contains much information about past and future events.
ILLC's Johan van Benthem was present at the Mumbai meeting, and besides Rohit Parikh himself and Peter Gaerdenfors (Lund), he is one of the voices in the following interview which the Times of India printed in connection with this logic event.'

Prizes and Awards 2006

Apt, K.R.
- Member of Academia Europaea

Benthem, J.F.A.K. van
- Funding for: Theoretical and Algorithmic Complexity Thresholds in Computer gameS (TACTiCS), NWO Open competition

Löwe, B.
- Funding for: Scientific Network PhiMSAMP, Deutsche Forschungsgemeinschaft (German Research Foundation).

Vitanyi, P.M.B.
- Adjunct Professor Computer Science; University of Waterloo, Ontario, Canada.

Professional distinctions, memberships of scientific boards, etc.

Apt, K.R.
- Member of the Executive Committee, Association for Constraint Programming.
- Chairman, ERCIM Working Group on Constraints.
- Member of the Board, International Federation for Computational Logic (IFCoLoG).
- Member of Advisory Board of Logical Methods in Computer Science (LMCS).

Benthem, J.F.A.K. van
- Treasurer, E.W. Beth Foundation.
- Board of directors, TARK: reasoning about knowledge and rationality.
- Chairman, Vienna Circle Archive.
- Honorary member, European Association for Language, Logic & Information (FoLLI),
- Vice-president, International Federation for Computational Logic (IFCoLoG).
- Member, Royal Dutch Academy of Arts and Sciences (KNAW)
- Member, Academia Europaea Member, Institut International de Philosophie (IIP)
- Professor, Stanford University, Department of Philosophy and CSLI
- Visiting university professor, Zhongshan University, Institute for Logic and Cognition

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).

Torenvliet, L.
- Board Member, Dutch Association for Theoretical Computer Science.

Väänänen, J.A.
- Member of the Committee of Logic in Europe, Association for Symbolic Logic.
- Member of the Programme Committee for the European Summer Meeting, Association for Symbolic Logic (Logic Colloquium).
- Member of the Jury, Horizons of Truth, Gödel Centenary 2006, An International Symposium Celebrating the 100th Birthday of Kurt Gödel, Young Scholars' Competition.

Vitanyi, P.M.B.
- Member Gödel Prize Committee, Gödel Prize Committee.
- Member, International Federation for Information Processing (IFIP) WG 1.4.

Editorial positions

Apt, K.R.
- ACM Transaction on Computational Logic.
- Journal of Logic and Computation.
- Theory and Practice of Logic Programming.

Benthem, J.F.A.K. van
- Amsterdam University Press.
- Cognitive Science Quarterly.
- Journal of Applied Logic.
- Journal of Logic and Computation.
- Journal of Philosophical Logic.
- Knowledge, Rationality and Action.
- Language and Computation.
- Lecture Notes in Logic, Language and Information.
- Logic Journal of the Interest Group in Pure and Applied Logics.
- Logic, Epistemology, and the Unity of Science.
- Logic, Games and Computation.
- Studia Logica.
- Studies in Linguistics and Philosophy.
- Studies in Logic and Foundations of Practical Reasoning.
- Synthese: Knowledge, Rationality, and Action.
- Transactions on Computational Logic.
- Universal Logic.
- Who's Who in Logic.

Emde Boas, P. van
- Information and Computation.
- RAIRO Informatique theorique et applications.

Löwe, B.
- Journal of Logic, Language and Information.
- Book series: "Texts in Logic and Games" (TLG).
- Tbilisi Mathematical Journal

Väänänen, J.A.
- Notre Dame Journal for Formal Logic
- Logica Universalis

Venema, Y.
- Logical Methods in Computer Science.
- Springer Book series on Logic, Language and Computation.

Vitanyi, 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 LoCo

Research Input 2006		Funding				
Position	**Name**	**UvA**	**NWO**	**EU**	**Other**	Grand Total
Full Professor	Apt	0.10				0.10
	Benthem				0.50	0.50
	Buhrman	0.10				0.10
	Emde Boas	0.40				0.40
	Jongh				0.20	0.20
	Väänänen	0.17				0.17
	Vitanyi	0.10				0.10
Full Professor Total		*0.87*			*0.70*	*1.57*
Associate professor	Torenvliet	0.50				0.50
	Venema	0.50				0.50
Associate professor Total		*1.00*				*1.00*
Assistant professor	Endriss	0.50				0.50
	Löwe	0.50				0.50
Assistant professor Total		*1.00*				*1.00*
Postdoc	Ghosh		0.34			0.34
	Palmigiano		0.15			0.15
	Sevenster	0.13				0.13
Postdoc Total		*0.13*	*0.49*			*0.61*
PhD student	Bold				1.00	1.00
	Cilibrasi				0.67	0.67
	Fontaine		0.13			0.13
	Gierasimczuk				0.33	0.33
	Ikegami			0.83		0.83
	Kupke		0.06			0.06
	Liu	0.75				0.75
	Oslowski			0.42		0.42
	Roy				1.00	1.00
	Seginer	0.19				0.19
	Semmes				1.00	1.00
	Sevenster		0.50			0.50
	Spalek				0.83	0.83
	Unger				1.00	1.00
	Uridia	0.75				0.75
	Velazquez-Quesada				0.17	0.17
	Vosmaer		0.13			0.13
	Wehner				1.00	1.00
	Witzel			0.92		0.92
	Zvesper			0.33		0.33
	Rooij, S. de				1.00	1.00
	Uckelman, S.				1.00	1.00
	Uckelman, J.			0.33	0.67	1.00
PhD student Total		*1.69*	*0.81*	*2.83*	*9.67*	*15.00*
Guest	Girard				0.33	0.33
	Hendriks				0.20	0.20
	Niekus				0.20	0.20
	Pacuit				0.33	0.33
	Sarma				0.25	0.25
	Segerberg				0.42	0.42
	Yu				0.83	0.83
Guest Total					*2.57*	*2.57*
Grand Total		4.68	1.30	2.83	12.93	21.75

2.2 Logic & Language (LoLa)

Programme leaders

Jeroen Groenendijk

Paul Dekker (deputy)

Research area

The programme Logic and Language is a broad research plan in philosophy, crossing the borders of empirical linguistics and cognitive science. Human reasoning and interpretation of natural language are the major themes. Logical and philosophical analysis are the basic scientific methods. Empirical ratification of analytical work is our main ambition and 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 longer term research aim.

This view on how logic and language connect, has obvious historical 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 the context of conversations.

In our investigations on reasoning we also want to show that logical languages can be fruitfully used as high-level specifications of cognitive functions, and that logic can be used in explaining human reasoning behaviour. To achieve these aims logical and computational models are paired with methods from empirical psychology and neuro-science in an innovative way. Our basic outlook on interpretation as a cognitive process embedded in social practices makes a strong bond between interpretation and reason(ing). Ultimately, we want to explain the procedures of the production and interpretation of speech as a natural evolution of rational human behaviour.

Developments in 2006

Here follows a report on the work done in the logic and language group in 2006. Note that even though it is subcategorized in 5 clusters, there are strong and intrinsic connections between them.

Semantics and Pragmatics
The topics studied under this heading are typically from a mixed semantic-pragmatic nature. They include:

- Exhausitivity operators and Hungarian focus.
- An integrated system dealing with the semantic and pragmatic aspects of questions.
- The interaction between 'only' and teleological modality.
- Counterfactual donkey sentences, disjunctions in counterfactuals, and free choice permissions.

Philosophical Foundations
The investigations under this heading mostly centre around Wittgenstein. They were concerned with the following topics:

- A Wittgensteinian account of the relationship between individual and community, with the rule following discussion as starting point.
- The roles of affordances and affect in skilful action.
- Wittgenstein's notion of übersichtliche Darstellung and related to this the phenomenon of Installation in visual art.
- Philosophical foundations of modern formal semantics. Here the emphasis was on the relation between semantics and cognitive science, and on the role of scientism in modern conceptions of meaning.

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

- The normativity of logic and the a priori.
- The role of literacy and schooling in the development of logical reasoning performance.
- The acquisition of complex syntax in a neural-symbolic model of sentence production.

A milestone was the completion of the book 'Human reasoning and cognitive science' by Michiel van Lambalgen and Keith Stenning, which will appear at MIT Press in 2007. This book shows that logic has an important role to play in explaining actual human reasoning. The logical laws involved are non-classical and give important clues to the neural mechanisms underlying reasoning, with implications for the study of autism.

Mood and Modality
In addition to declaratives and the modalities used in declarative sentences, we also study interrogatives and imperatives. The main developments have been the following:

- A new chapter on semantics of questions was started. In view of a wide range of empirical phenomena, including conditional questions, which-question and disjunctions of questions, the dominant logical picture of questions as partitions of logical space was relaxed in such a way that the blocks in the partition, alternatives, are no longer required to be mutually exclusive. This change in the logical picture brings along a fundamental rethinking of the key notions in the logic and semantics of questions and answers.
- The semantics of imperatives developed in the past few years served as a basis for an explanation of the fact that deontic modalities cannot occur in the scope of epistemic modalities. A typological study is made to show that this is not a coincidence but a universal property.
- A compositional semantics for counterfactual conditionals was developed that solves a number of problems with the standard account.

Games and Evolution
Game theory is often put to use in order to explain linguistic phenomena, sometimes with surprising results:

- The investigations in IF logic were finalized with a new notion of equivalence, and a simplified Skolem form for classical logic.
- In the framework of signalling games, a partial explanation was given of formal models of pragmatic reasoning in terms of 'optimal play by rational agents'.
- The work on a uniform game theoretic account of various types of conversational implicatures has been continued.

Perspectives and expectations

We hope that in 2007 five of the projects listed above will result in a dissertation. Most of the other projects will be continued. A number of new projects will start up, among which the following:

Semantics and Pragmatics
- A uniform analysis of free choice and negative polarity 'any'.

Philosophical Foundations
- An investigation of the distinction between grammatical form and logical form and its methodological ramifications.

Logic and Cognition
- The linguistic and philosophical foundations of the notion of 'truth'.
- Kant's logic and its relevance for cognitive science.

Internal and external collaboration

Many of the group members participate in the local colloquia, such as the DIP, LEGO, and Gloriclass meeting. 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, and in the organisation of workshops.
Maria Aloni, Alastair Butler and Paul Dekker have completed their volume of (mainly Amsterdam) work on questions in update semantics; it has recently appeared in print. Kata Balogh was chair in the Szklarska Poreba workshop in Poland and co-chair of the 2006 ESSLLI student session. Chantal Bax made an extended research visited to the Center for Subjectivity Research in Copenhagen, Denmark. Marian Counihan co-organised the workshop 'Formal models for real people' with Irene Kramer and this will result in a special issue of the JoLLI in 2007. Together with Hedde Zeijlstra Paul Dekker has organized an ESSLLI workshop on 'concord' on the syntax / semantics interface. Hartmut Fitz and Michiel van Lambalgen collaborate with Franklin Chang from the NTT communication science laboratory in Kyoto, Japan. Michael Franke starts joint work with Magdalena Schwager (Frankfurt am Main). Michiel van Lambalgen closely cooperates with the F.C. Donders Centre in Nijmegen. Erik Rietveld made various research vests to UC Berkeley and Harvard University. Erik Rietveld, Martin Stokhof and Richard Moore organized a KNAW Workshop on the Nature of Expertise in Context. Floris Roelofsen worked with linguists at Harvard, amongst others Barbara Grosz and Rebecca Nesson. Robert van Rooij has worked on a game theoretic account of conversational implicatures with Anton Benz (Berlin) and on Language Evolution with Gerhard Jäger (also Berlin).

Prizes and Awards 2006

Stokhof, M.J.B.
- Member of the Royal Dutch Academy of Sciences.

Szymanik,J.
- Prize for Young Scientists (Foundation for Polish Science)

Professional distinctions, memberships of scientific boards, etc.

Stokhof, M.J.B.
- Chairman, Alfa Beraad.
- Chairman of the Steering Committee and Network Board, ERA network HERA.
- 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.

Veltman, F.J.M.M.
- Chair VIDI committee Humanities, NWO.

Editorial positions

Dekker, P.J.E.
- Journal of Semantics.
- Linguistics and Philosophy.

Rietveld, D.W.
- Abstracta: Language, Mind & Action.

Rooij, R.A.M. van
- Journal of Semantics.

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.

Veltman, F.J.M.M.
- Argumentation
- Journal of Applied logic

Researchers LoLa

Research Input 2006		Funding				
Position	**Name**	**UvA**	**NWO**	**EU**	**Other**	Grand Total
Full Professor	Groenendijk	0.40				0.40
	Lambalgen	0.20				0.20
	Stokhof	0.20				0.20
	Veltman	0.10				0.10
Full Professor Total		*0.90*				*0.90*
Associate professor	Lambalgen	0.10				0.10
	Veltman	0.10				0.10
Associate professor Total		*0.20*				*0.20*
Assistant professor	Dekker	0.40				0.40
	Hinzen	0.27				0.27
	Janssen	0.30				0.30
	Kwast	0.00				0.00
Assistant professor Total		*0.97*				*0.97*
Postdoc	Aloni		0.80			0.80
	Rooij, R. van		0.84			0.84
Postdoc Total			*1.64*			*1.64*
PhD student	Achourioti		0.06			0.06
	Balogh	1.00				1.00
	Bax	1.00				1.00
	Bentzen				0.25	0.25
	Counihan		0.70			0.70
	Fitz	0.92				0.92
	Franke		1.00			1.00
	Hindsill		0.20			0.20
	Jager		1.00			1.00
	Nauze	1.00				1.00
	Rietveld	1.00				1.00
	Roelofsen	1.00				1.00
	Schulz		0.90			0.90
	Szymanik			0.92		0.92
	Wilde	1.00				1.00
PhD student Total		*6.92*	*3.86*	*0.92*	*0.25*	*11.95*
Grand Total		8.98	5.50	0.92	0.25	15.65

2.3 Language & Computation (LaCo)

Programme leaders

Remko Scha

Khalil Sima'an (deputy)

Research area

The Language and Computation programme is concerned with computational models of human information processing, especially natural language processing and music perception. Our methods 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. We try to develop algorithms which are cognitively plausible as well as practically useful.
A central research topic is the further development of corpus-based processing methods for natural language, building on the Data-Oriented Parsing (DOP) model we developed over the last fifteen years. The DOP model de-emphasizes the problem of delimiting the class of `grammatical' sentences of a language. Instead, it assumes an over generating competence grammar, and focuses on the problem of statistical disambiguation. A data-oriented parser employs a large corpus of annotated utterances as a representation of its `past language experience', and analyses new input on the basis of statistics about the sub trees in this corpus.
Modelling semantic phenomena which involve discourse and context is another important topic. Our work in this area is based on the 'radical pragmatics' approach. Since linguistic meanings severely underdetermine the content expressed by an utterance, there must be a pragmatic completion mechanism; we conjecture that this mechanism is an optimization procedure which may be spelled out in the framework of bi-directional Optimality Theory.
An important application area is concerned with Information Storage and Retrieval. Our methods improve the usefulness of I.R. systems by exploiting document structure and web links.
Our research on music cognition focuses on an aspect of music which is fundamental but ill-understood: the perception of temporal properties such as

rhythm, tempo and timing. We develop computational models that implement formal theories, and validate these models through experiments with human listeners. The models 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: they are both 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. An increasing convergence of methods and techniques can be observed already.

Developments in 2006

Probabilistic Language Processing
In 2006, The NWO project 'Learning Stochastic Grammars from Treebank's' was closed off, with major mathematical and practical results on the consistent statistical estimation of data-oriented language models. At the same time, several new extensions and applications of the Data-Oriented Parsing approach were developed. (1) First experimental results were obtained in a project which integrates probabilistic parsing and morphological analysis for Modern Hebrew. (2) A new line of research was initiated which applies probabilistic syntax to Machine Translation. Our results are the first to show that the use of syntactic structure can actually yield better translation accuracies than the state-of-the art systems which rely on 'shallow' statistics about word sequences. (3) The U-DOP model, which extracts a 'DOP grammar' from a corpus of POS-tag sequences, outperformed all existing models on several benchmark tests. (4) A project on 'image parsing' was started, which applies the techniques of probabilistic language processing to the problem of automatic image analysis.

Discourse and Optimality Theory
We developed optimality-theoretic accounts of several pragmatic phenomena involving implicature, presupposition and rhetorical structure. In these accounts, optimal meanings result from a process of conflict resolution between competing constraints. This allows an integrated treatment of the various factors which together determine utterance interpretation: the wellformedness of syntactic structure, the plausibility and internal coherence of interpretations, and the relevance of an interpretation in the discourse context.

Information Storage and Retrieval
We investigated information retrieval in the context of XML-documents, the WorldWide Web, and digital cultural heritage. Our models employ textual information in a linguistically sophisticated way, and combine this with additional information, such as document structure, web-link structure, and metadata. The methodological focus is on statistical approaches that exploit the volume of data available, with a preference for transparent models that resonate with theoretical and intuitive insights.

Music Cognition
The NWO innovation impulse project 'Towards a Unifying Model of Linguistic, Musical and Visual Processing' was closed off. Its results include a group-theoretical understanding of tonality (with an application to automatic pitch spelling), and an experimental investigation of the notion 'musical phrase'.
In the new EG-funded project 'Emergent cognition through active perception', an empirical study established that mere exposure (as opposed to formal expertise) plays an important role in making timing judgments in music. We implemented a multiple time scale model of rhythm and expectancy, and studied the effect of syncopation and metrical hierarchy on the perceived rhythmic complexity of music. On a methodological level, we evaluated the use of different criteria (goodness-of-fit, simplicity, surprise) to select the optimal model among different proposed models of expressive timing.

Perspectives and expectations

New NWO grants will boost the development of some recently initiated research lines: grammar induction (VICI-grant R. Bod), statistical estimation from incomplete data (VIDI-grant K. Sima'an) and retrieving encoded archival descriptions (VIDI-grant J. Kamps). A new project on language acquisition will use the DOP-framework to model human language development.
Some existing research lines will be increasingly integrated. In particular, the time is ripe for comparing Data-Oriented Parsing and Optimality Theory as alternative approaches to the over determined nature of syntactic structures in natural language. Increasing interaction between our language research and our music research is also to be expected. We find increasing experimental evidence for a 'memory-based' component in music perception; our research on Data-Oriented Parsing will be a useful point of departure in modelling this phenomenon.

Internal and external cooperation

- Probabilistic Language Processing: St. Andrews University, Scotland.
- 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).
- Information Retrieval: Computer Science Institute, UvA.
- Music Cognition: NICI (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).

Prizes and Awards 2006

Bod, R.
- NWO VICI Award, Cognition: Unsupervised Learning with the DOP Model

Honingh, A.K.
- ESCOM young researcher award 2006. Ninth International Conference on Music Perception and Cognition: Bologna (August 22-26).

Kamps, J.
- NWO VIDI Award. Retrieving Encoded Archival Descriptions More Effectively (README)

Sima'an, K.
- NWO VIDI Award, Estimation of Probabilistic Grammars from Incomplete Natural Language Data

Sima'an, K.
- Funding for a project ATTEMPT: All-Trees Efficient Models of Parsing and Translation (Science Foundation Ireland)

Tsarfaty, R.
- ESSLLI Student Session Best Paper Award. ESSLLI, August 2006: Malaga.

Editorial positions

Honing, H.J.
- Empirical Musicological Review.
- Journal of New Music Research.

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

Zeevat, H.W.
- Sprache und Datenverarbeitung, 30(1).

Researchers LaCo

Research Input 2006		**Funding**			
Position	**Name**	**UvA**	**NWO**	**EU**	Grand Total
Full Professor	Scha	0.40			0.40
Full Professor Total		*0.40*			*0.40*
Associate professor	Zeevat	0.40			0.40
Associate professor Total		*0.40*			*0.40*
Assistant professor	Blutner	0.45			0.45
	Bod	0.13			0.13
	Honing	0.10			0.10
	Kamps	0.40			0.40
	Sima'an	0.50			0.50
Assistant professor Total		*1.58*			*1.58*
Postdoc	Arampatzis		0.75		0.75
	Arsenijevic		0.25		0.25
	Bod		0.56		0.56
	Honing		0.80		0.80
	Honingh		0.08		0.08
	Prescher		0.68		0.68
	Smith			0.90	0.90
	Zuidema		0.90		0.90
Postdoc Total			*4.02*	*0.90*	*4.92*
PhD student	Honingh		0.12		0.12
	Kaptein		0.88		0.88
	Koolen		0.75		0.75
	Ladinig			1.00	1.00
	Spiro		0.06		0.06
	Tsarfaty		0.75		0.75
PhD student Total			*2.56*	*1.00*	*3.56*
Grand Total		2.38	6.58	1.90	10.85

3. Graduate Programme in Logic

3.1 MSc programme in Logic

'You have something very special here'

The year 2006 was exciting for the MSc Logic, as it was for most of the teaching programmes of the FNWI: they had to go through the first accreditation process. The MSc Logic was evaluated in November by an international six-member visitation committee who reported their findings of the evaluation visit in the evening hours of November 2 to the waiting students and researchers. Chairman Rene Kloosterman opened the announcement of results with the words 'You have something very special here'. The committee reported that they were impressed with the enthusiasm and devotion of management, teachers and students, the interplay between teaching and research, the embedding of the MSc Logic in the research institute ILLC, and the highly personal mentoring system that connects students and researchers; they called the MSc 'unique and excellent'. The preliminary report of the findings listed four scores of 'excellent' (indicative of world-class quality) and thirteen scores of 'good'. The close link between the ILLC and the MSc Logic and the high research quality of the theses written in the MSc Logic were mentioned centrally in the report.

During this moment of praise for the MSc Logic, the evaluation committee pointed out a number of dangers that need to be addressed: they were concerned about the MSc's future ability to attract students from non-European countries in light of the student fee hike for non-European students in 2007; they were concerned about the rift between humanities and science that the move of the ILLC to the Science Park may create; and they warned of the ever-present danger of overregulation. In the closing words, the committee said: 'One of your greatest assets is the informality of personal involvement of the programme. Overregulation can destroy this and scare off the best students and professors.'

During this intensive evaluation phase, research and teaching in the MSc Logic continued at the usual high level. In September 2006, a new class of students was accepted. The new class was similar to those of earlier years: 31.5% of the new students were Dutch, 36.8% were non-European, among them US students from M.I.T. and Northeastern University. As always, the new students represented a broad spectrum of subjects, coming from diverse backgrounds such as Linguistics, AI, Computer Science, Philosophy, Mathematics, Economics, Beta-Gamma, and Law.

Our students were very successful in attracting grants for their studies. The Beth

Foundation gave the prestigious Beth grant to three of our students (Dong, Gaio, and Yang); our students won four HSP grants (Di Bello, Klarman, Leal, Sterken), a Heyting Scholarship, a Fulbright Scholarship, and a DELTA scholarship. One of our students is funded by a personal grant from our partner institute at Guangzhou.

The year 2006 also saw a number of very successful graduations of MSc students. Over half of our 2006 graduates started immediately as PhD students, two of them at the ILLC (Fontaine and Vosmaer). Two of the theses written in 2006 are already published: Ioanna Dimitriou published results from her thesis (jointly with Löwe and Andreas Blass of the University of Michigan) in the journal Fundamenta Mathematicae and Gaelle Fontaine published her main result in the volume Advances in Modal Logic 2006. Jill Cirasella graduated in 2006 and was afterwards appointed Assistant Professor of Library and Information Science at Brooklyn College in New York and is the reference librarian for computer and information science there.

During the year 2006, the MSc Logic started to install an exchange programme with the Indian Institute of Technology at Mumbai (IITB). The opleidingsdirecteur has been in contact with the research dean of IITB in order to sign a memorandum of understanding for this student exchange.

3.2 PhD programme in Logic

In 2006 we had 44 PhD students who were fulltime or parttime working on a PhD project at ILLC.

Some statistics:

- These 44 PhD students came from as much as 20 countries. The top-5 countries:
  Netherlands: 11
  Germany: 7
  U.S.A.: 5
  Israel/Poland: 3 each

- 10 PhD students were UvA funded, 15 NWO, 7 EU, and 12 were guest PhD students (including CWI PhD students).

- 16 were female, 28 male.

- 13 were graduates of the MSc in Logic programme.

- There were 8 ILLC dissertations, one of which was external.

- The 7 internal dissertations had an average promotion length of 4 years and 3 months, measured from the starting date to the date of the actual defense.

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. On the next page Paul Dekker, who was in the committee for the tenth time already, writes about the goals and intentions of the PVC.

PVC

Within ILLC, the progress of the PhD projects is monitored once a year by the Promotie Voortgangscommissie (which is Dutch for Promotion Progress Committee). This committee which consists of junior staff members and the manager of ILLC 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, material) for the students to come to a succesful 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. By means of the latter procedure the PVC has been able to solve some more structural problems, reprimand underachieving supervisors, improve the information supply, and get evaluative input about other organisational aspects of ILLC. Indeed, the last couple of years much less problems have shown up than in the previous years, thus rendering the PVC more and more redundant. But never superfluous, though!

'When we say, as we say in each interview, that it is not our job to evaluate the student, of course we are lying. We look at his or her haircut, the shoes, and the research, because these make up the arguments we take up with the supervisors. Typical recommendations then are: (s)he should visit this or that hairdresser, don't wear Nikes, and, more often, the supervisors should coordinate more with each other, or should have more regular meetings with the student, and so on. The evaluations almost always proceed in a very pleasant atmosphere, and normally include a bonus question like: 'Have you been at the OZSL winter school?' For this question the student could win a 'Vergulde Koek' (Golden Cookie) or 'Bokkepoot' (Goat's Leg) with the right answer: 'But the winter school was cancelled!"
All jokes aside, the PVC appears to be a successful institution. No student complains about having 'another interview' in addition to the yearly interview with their supervisors. Indeed a large number explicitly appreciates the additional attention given to them. We, from our part, also appreciate the presence of all the students, and the help they give us in giving support to the others. The regular interaction facilitates and improves the PhD programme and its organizational success.
Given this, it comes as no surprise that other institutes from various faculties (Humanities, Science, Medicine) have shown interest in this set up, and are considering adopting an evaluation system just like this.

Paul Dekker

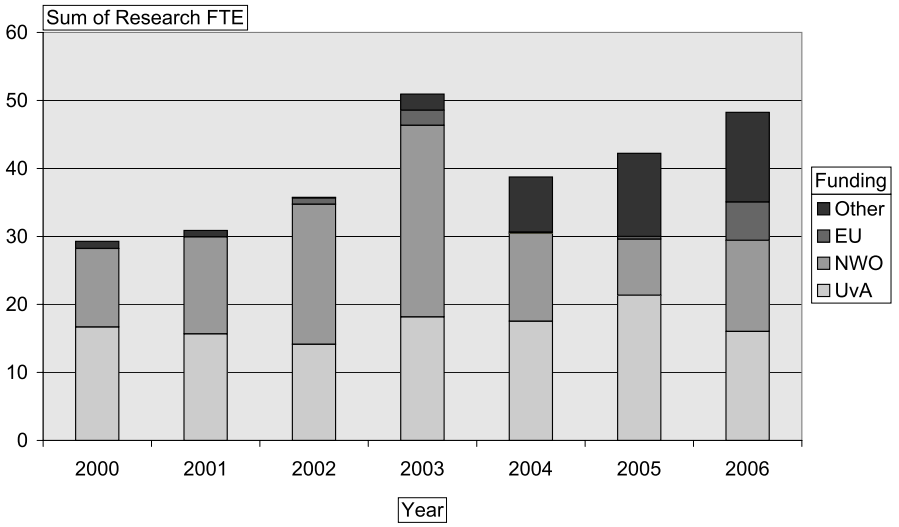
4. Management

4.1 People, research input

In appendix 1 the research input of the ILLC staff members is represented. A comparison with 2005 shows a rise of the total FTE from 42.23 to 48.26 (15%).

We are now almost back on the level of 2003, the year in which some big NWO projects started and which was the last year that the Language and Inference Technology group of Maarten de Rijke belonged to ILLC (in April 2004 this group made a switch to the Institute for Informatics).

The chart below shows the research FTE and the funding from the year 2000 onwards. Most striking is the number of FTE that is funded by the EU in 2006: 5.65 FTE , which is 11% of the total research FTE. Excluding the category 'other' (mostly guest researchers and guest PhD students) the UvA-NWO-EU ratio was: 46%-38%-16% which is the highest ever.



The rise in total FTE can be traced to a rise in the number of postdocs, (EU) PhD students and guests.

In this respect it is good to mention that in 2006 all vacant positions were filled, except for the chair of Johan van Benthem (who became university professor in 2003). The ILLC budget does not allow at the moment to have this position filled by a full professor.

The number of guest PhD students remained the same. Guest PhD students are PhD students without a paid position at the UvA but preparing a promotion at the UvA under supervision of one of the ILLC professors. Guest PhD students also include PhD students supervised by one of our CWI professors. At the end of 2006 there were 13 guest PhD students. Special attention has to be paid to their position as they sometimes tend to fall in a vacuum between the status of an employee and that of a student.

With the VICI project of Rens Bod, the two VIDI projects of Khalil Sima'an and Jaap Kamps (all starting in 2007) and the VICI project of Yde Venema coming into full swing in 2007, we expect a further growth in 2007.

4.2 Publications, research output

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

Articles in refereed journals: 51
Articles in proceedings: 81
Book chapters: 31
Edited volumes: 12
Monographs: 5
Dissertations: 8

On average they published 3.4 refereed publications per research FTE: 163 (=number of articles in journals, articles in proceedings and book chapters) divided by 48.25 (=research FTE). This number is exactly the same to the number of 2005.

4.3 External funding

The extremely succesful year 2005 was succeeded by another. In appendix 3 you will find an overview of all projects that were attracted by ILLC researchers. Mentioned several times in this annual report are of course the two VIDI projects by Khalil Sima'an and Jaap Kamps, and the VICI project of Rens Bod. The total amount of money attracted is 2.7 million EURO, which is not so much as 2005 (3.9 million EURO) but still amazing considering the fact that it is comparable to the annual UvA budget of the entire ILLC.

4.4 Financial statement 2006

As a consequence of the new financial administration system (PNIA) it is not possible -at the time of writing- to show a financial statement of 2006.

4.5 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.

4.6 Events

The number of events that ILLC is organizing is relatively high. We have as much as 6 regular colloquia, most of them bi-weekly. On top of this we organized 11 workshops/conferences in 2006. In appendix 4 you will find an overview.

4.7 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
Secretary (ILLC Office): Ms M. Veldhuisen
Secretary (ILLC Office): Ms K. Gigengack
Secretary (Master of Logic programme): Ms Drs T. Kassenaar
System administrator and web master: Dr. M. Vervoort

Ingrid van Loon
Manager ILLC

5. Appendices

Appendix 1. Research FTE

Research input 2006		Faculty		
Position	**Funding**	**FGW**	**FNWI**	Grand Total
Full Professor	UvA	1.30	0.87	2.17
	Other		0.70	0.70
Associate professor	UvA	0.50	1.10	1.60
Assistant professor	UvA	1.47	2.07	3.54
Postdoc	UvA		0.13	0.13
	NWO	3.44	2.71	6.15
	EU		0.90	0.90
PhD student	UvA	6.92	1.69	8.60
	NWO	5.49	1.75	7.23
	EU		4.75	4.75
	Other	0.25	9.67	9.92
Guest	Other		2.57	2.57
Grand Total		19.37	28.89	48.25

Total Human Resource FTE = 60.27

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

Appendix 2. Publications

Appendix 2.1 Logic and Computation

Articles in refereed journals

Allender, E., Buhrman, H.M., Koucky, M., Melkebeek, D. van, & Ronneburger, D. (2006). Power from random strings. *SIAM Journal on Computing, 35*(6), 1467-1493.

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PP-2006-01
Ulle Endriss. Monotonic Concession Protocols for Multilateral Negotiation.

PP-2006-02
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PP-2006-03
Reinhard Blutner. Optimality Theoretic Pragmatics and the Explicature/ Implicature Distinction.

PP-2006-04
Evert van Emde Boas. Rhetorical Questions in Ancient Greek.

PP-2006-05
Steve Jackson, Benedikt Löwe. Canonical Measure Assignments.

PP-2006-06
Johan van Benthem. A New Modal Lindström Theorem.

PP-2006-07
Johan van Benthem. Information as Correlation versus Information as Range.

PP-2006-08
Guram Bezhanishvili, Johan van Benthem. Modal Logics of Space.

PP-2006-09
Steve Jackson, Farid Khafizov. Descriptions and cardinals below δ^1_5.

PP-2006-10
Benedikt Löwe, Brian Semmes. The Extent of Constructive Game Labellings.

PP-2006-11
Johan van Benthem. Dynamic Logic of Belief Revision.

PP-2006-12
Daisuke Ikegami. Projective absoluteness under Sacks forcing.

PP-2006-13
Benedikt Löwe. Set Theory of Infinite Imperfect Information Games.

PP-2006-14
Benedikt Löwe. Revision Forever!.

PP-2006-15
Yann Chevaleyre, Ulle Endriss, Nicolas Maudet. Tractable Negotiation in Tree-structured Domains.

PP-2006-16
Sylvia Estivie, Yann Chevaleyre, Ulle Endriss, Nicolas Maudet. How Equitable is Rational Negotiation?.

PP-2006-17
Yann Chevaleyre, Ulle Endriss, Jérôme Lang. Expressive Power of Weighted Propositional Formulas for Cardinal Preference Modelling.

PP-2006-18
Merlijn Sevenster. The Complexity of Scotland Yard.

PP-2006-19
Rens Bod. Exemplar-Based Linguistics How to Get Productivity from Examples.

PP-2006-20
Rens Bod. Towards a General Model of Applying Science.

PP-2006-21
Johan van Benthem, Jelle Gerbrandy, Barteld Kooi. Dynamic Update with Probabilities.

PP-2006-22
Vincent Kieftenbeld. Notions of Strong Compactness without the Axiom of Choice.

PP-2006-23
Brian Semmes. Multitape Games.

PP-2006-24
Brian Semmes. A Game for the Borel Functions.

PP-2006-25
Nick Bezhanishvili, Dick de Jongh. Intuitionistic Logic.

PP-2006-26
Tomasz Sadzik. Exploring the iterated update universe.

PP-2006-27
Benedikt Löwe. Space bounds for infinitary computation.

PP-2006-28
Eric Pacuit. Some Comments on History Based Structures.

PP-2006-29
Eric Pacuit. A Note on Some Explicit Modal Logics.

PP-2006-30
Johan van Benthem, Patrick Blackburn. Modal Logic A Semantic Perspective.

PP-2006-31
Merlijn Sevenster, Tero Tulenheimo. Partially ordered connectives and Sigma-1-1 on finite models.

PP-2006-32
Merlijn Sevenster. Henkin quantifiers logic, games, and computation.

PP-2006-33
Benedikt Löwe, Eric Pacuit. An abstract approach to reasoning about games with mistaken and changing beliefs.

PP-2006-34
Olivier Roy. Commitment-Based Decision Making for Bounded Agents.

PP-2006-35
Nina Gierasimczuk, Jakub Szymanik. Hintikka's Thesis Revisited.

PP-2006-36
Jakub Szymanik. A note on some neuroimaging study of natural language quantifiers comprehension.

PP-2006-37
Fenrong Liu. Diversity of Agents.

PP-2006-38
Dick de Jongh, Fenrong Liu. Optimality, Belief and Preference.

PP-2006-39
Audrey Yap. Product Update and Looking Backward.

PP-2006-40
Marcin Mostowski, Jakub Szymanik. Semantical bounds for everyday language.

PP-2006-41
Fenrong Liu. Preference Change and Information Processing.

PP-2006-42
Ulle Endriss, Eric Pacuit. Modal Logics of Negotiation and Preference.

PP-2006-43
Yann Chevaleyre, Ulle Endriss, Sylvia Estivie, Nicolas Maudet. Multiagent Resource Allocation in k-additive Domains Preference Representation and Complexity.

PP-2006-44
Johan van Benthem, Eric Pacuit. The Tree of Knowledge in Action Towards a Common Perspective.

PP-2006-45
Johan van Benthem, Fenrong Liu. Dynamic logic of preference upgrade.

PP-2006-46
Andreas Blass, Ioanna M. Dimitriou, Benedikt Löwe. Inaccessible Cardinals without the Axiom of Choice.

PP-2006-47
Tero Tulenheimo, Merlijn Sevenster. Approaches to Independence Friendly Modal Logic.

PP-2006-48
Dick de Jongh. The Incompleteness Theorems, their content and their meaning.

PP-2006-49
Johan van Benthem. Computation as Conversation.

PP-2006-50
Yann Chevaleyre, Ulle Endriss, Sylvia Estivie, Nicolas Maudet. Reaching Envy-free States in Distributed Negotiation Settings.

PP-2006-51
Jesus Cerquides, Ulle Endriss, Andrea Giovannucci, Juan A. Rodriguez-Aguilar. Bidding Languages and Winner Determination for Mixed Multi-unit Combinatorial Auctions.

PP-2006-52
Nina Gierasimczuk. The Problem of Learning the Semantics of Quantifiers.

PP-2006-53
Merlijn Sevenster, Tero Tulenheimo. Finite model theory for partially ordered connectives.

PP-2006-54
Martin van Hees, Olivier Roy. Intentions and Plans in Decision and Game Theory.

PP-2006-55
Yann Chevaleyre, Ulle Endriss, Jérôme Lang and Nicolas Maudet. A Short Introduction to Computational Social Choice.

PP-2006-56
Joost J. Joosten. Semantics for sub-intuitionistic logics.

PP-2006-57
Vincent Kieftenbeld, Benedikt Löwe. A classification of ordinal topologies.

PP-2006-58
Raquel Fernández, Ulle Endriss. Abstract Models for Dialogue Protocols.

PP-2006-59
Johan van Benthem. Rationalizations and Promises in Games.

Appendix 3. Projects and Awards

Appendix 3.1 Projects

VICI award: Rens Bod
Rens Bod received a VICI grant for the project 'Integrating Cognition'. Rens is awarded the sum of 1.25 million EURO which will create jobs for 2 PhD students (3 years) and 2 postdocs (3 years).

VIDI grants for Khalil Sima'an and Jaap Kamps
Two of the eight VIDI grants that were awarded within NWO Exact Sciences went to the LaCo programme in ILLC.
Both Khalil Sima'an and Jaap Kamps got a VIDI grant for their respective projects, 'Priors for the Estimation of Probabilistic Grammars from Incomplete Natural Language Data' and 'Retrieving encoded archieval descriptons more effectively' ('README').
Sima'an's project has a total budget of 767 kEURO of which 405 kEURO comes from NWO. Besides Sima'an himself, a postdoc (3 years) and a PhD student (4 years) will be attracted to work on the 'Priors' project.
The README project has a budget of 600 kEURO of which 405 kEURO comes from NWO, and creates jobs for two PhD students, one postdoc and one parttime scientific programmer.

TACTICS
The project proposal of Johan van Benthem and Jaap van Heerik (Maastricht), entitled Theoretical and Algorithmic Complexity Tresholds in Computer Sciences (TACTICS) is awarded with 344 kEURO in the Open Competition Programme of NWO. With this budget two PhD positions will be created: one at the ILLC; one in Maastricht.

Scientific Network PhiMSAMP
The DFG (Deutsche Forschungsgemeinschaft = German Research Foundation) decided to fund the 'Scientific Network' PhiMSAMP (Philosophy of Mathematics: Sociological Aspects and Mathematical Practice) coordinated by Thomas Müller (Bonn) and Benedikt Löwe.
The Network consists of six nodes, Amsterdam, Bonn, Brussels, Darmstadt, Dortmund, and Fort Wayne IN, and will fund workshops and meetings on applying sociological and empirical methods to questions of philosophy of mathematics. (For more information, see http://www.lib.uni-bonn.de/PhiMSAMP/)

Appendix 3. 2 Awards

Three out of six ESSLLI prizes to ILLC students!
ILLC's PhD and MoL students were very succesful in the 2006 ESSLLI Summer School. In the oral session Reut Tsarfaty won the first prize for her talk 'The Interplay of Syntax and Morphology in Building Parsing Models for Modern Hebrew'.
Michael Franke and Scott Grimm both received third places; Michael in the oral session for his talk 'Teological Necessity and Only' and Scott in the poster session for his poster 'Subject Marking in Hindi/Urdu: A Study in Case and Agency' (based on his Master of Logic thesis).

ILLC team wins 'Nieuwe Ideeën Prijs'
A team consisting of Leen Torenvliet, Sybren Stüvel (student) and Peter Blok (Head of FNWI Buildings) won the prestigious Science Park Nieuwe Ideeën Prijs 2006 for their Digital Location System.
This location system can serve many purposes. For one thing, it can and will be used as a security system in buildings like Euclides. It is based on an idea of Leen which as the jury said is 'as simple as it is brilliant', but about which we cannot say too much until the patent application is completed. Suffice it to say that there is a lot of interest from outside to develop this system further and to bring it on the market. (See http://www.scienceparkamsterdam.org/ for more information.)

Ackermann Award 2006 for Balder ten Cate
The Jury of the Ackermann Award 2006 has decided to award to Balder ten Cate one of the two Ackermann Awards 2006 for his ILLC dissertation 'Model theory for extended modal languages'
This EACSL Outstanding Dissertation Award for Logic in Computer Science was presented to the recipients at the annual conference of the EACSL (CSL'06). The award consists of

- a diploma
- an invitation to present the thesis at the CSL conference
- the publication of the abstract of the thesis and the laudatio in the CSL proceedings
- travel support to attend the conference

(For more information about the award, see http://www.dimi.uniud.it/~eacsl/award.html)

Martin Stokhof elected as KNAW member
Martin Stokhof, professor in Philosophy of Language at ILLC, is elected as member of the KNAW (Royal Netherlands Academy of Arts and Sciences). He is the fourth ILLC professor to become a KNAW member after Renate Bartsch, Anne Troelstra and Johan van Benthem.. (For more information, see http://www.knaw.nl/)

Prof. Krzysztof Apt: member of Academia Europaea
ILLC and CWI professor Krzysztof Apt has been chosen as 'member of Academia Europaea' in Informatics Section. In total there are 66 members of which 7 from the Netherlands. (For more information, see http://www.acadeuro.org/)

Prize for Young Scientists to Jakub Szymanik
These twelve-month stipends are awarded since 1992 to the most promising young researchers (up to the age of 30) whose achievements have been already recognised. The number of beneficiaries each year exceeds 100.

Appendix 4. Events

Appendix 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 programme of the colloquium reflects the current research interests of the group: cognition and reasoning, formal semantics and pragmatics, computational linguistics and philosophy of language. Website: http://www.illc.uva.nl/dip/

Speakers in 2006 included:
- Irene Krämer (Department of Linguistics, University of Nijmegen): Learning how to make most of many: quantification and mutual knowledge in children.
- Adrian Brasoveanu (Rutgers University & University of Stuttgart): Representing Content and Meaning in Discourse
- Tony Belpaeme (University of Plymouth): The trouble with perceptual categories: studying colour categories with computational models
- Christian Ebert (University of Bielefeld): Expressive Power and Complexity of Underspecified Representations
- Corien Bary (Radboud Universiteit Nijmegen): The Imperfect and Aorist in Ancient Greek
- Krister Segerberg (Uppsala Universitet): The Elusive Logic of Action
- Eugen Fischer (NIAS, Den Haag): The Invention of 'Secondary Qualities'. How Philosophical Pictures May Shape Abstract Reflection
- Graham Katz (Osnabrück): Propositional content, pre-semantic binding and the Pragmatics/Semantics interface
- Janneke Huitink (Nijmegen): Epistemic Modality and Quantifier Scope
- Maarika Traat (Institute of Computer Science, University of Tartu): Information structure in DRT and CCG
- Jay D. Atlas (Pomona College): Bad Dreams: Dennet on Qualia, Consciousness and Memory
- Reinhard Muskens (Tilburg University): Hyperintensionality in the Theory of Types
- Jason Stanley (Rutgers University, New Brunswick NJ): Knowledge and Certainty
- Katja Jasinskaja (Universität Potsdam): Doing discourse relations by topics and implicatures
- Judit Gervain (SISSA (International School for Advanced Studies), Trieste): Statistical Information in the Linguistic Input to Infants: a Cross-linguistic Corpus Study
- Magdalena Schwager (Johann Wolfgang Goethe-Universität, Frankfurt): What mayors, strikers and bodyguards might tell us about individual concepts

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.
Webs ite: http://www.illc.uva.nl/logic_tea/

Speakers in 2006 included:
- Dennis Bonnay (IHPST/DEC Paris): What is a logical constant?
- Tiago de Lima (Toulouse): A tableau method for public announcement logics
- Patrick Girard (Stanford): Ceteris Paribus Clauses: Normal or Equal?
- Hans van Ditmarsch (Otago): Arbitrary announcement logic
- Edward N. Zalta (Stanford): Convergence in the Philosophy of Mathematics
- Peter van Emde Boas (ILLC): Wij Juliana, ...
- Ioanna Dimitriou (University of Bonn): Symmetric models of ZF-set theory and some applications
- Stephen Read (St.Andrews): Thomas Bradwardine and a fourteenth-century solution to the semantic paradoxes
- Sujata Ghosh (ILLC): Belief-Disbelief Interface: A Bi-logical Approach
- Simon Huttegger (Konrad Lorenz Institute for Evolution and Cognition Research): Dynamics of Signaling Games
- R. Ramanujam (Chennai Institute of Mathematical Sciences): Security Protocols: A Logical Quagmire
- Tadeusz Litak (Japan Advanced Institute of Science and Technology): Algebraization of H(↓,@) and the Bounded Fragment
- Olivier Roy (ILLC): From Decision Theory to Belief Dynamics
- Dick de Jongh & Krister Segerberg (ILLC & Uppsala): Part I: Kripke frames, Heyting Algebras, reductions and duality; Part II: Remembrances of the p-morphism in times past

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.
Website: http://www.math.uu.nl/people/jvoosten/seminar.html

Speakers in 2006 included:
- Bas Spitters (Nijmegen): Observational Integration Theory
- Milad Niqui (Nijmegen): Exact Real Numbers in Coinductive Type Theory
- Asger Tornquist (Torino): Construction of non-conjugate actions
- Bob Lubarsky (Florida Atlantic University): Notions of Reals in Constructive ZF
- Philipp Hieronymi (Oxford): Inner Models and Topos Theory
- Saeed Salehi (Turku University): Modal Logic of Cut-Free Provability in Weak Arithmetics
- Roland Hinnion (Brussels): Positive Set Theories
- Joost J. Joosten (Utrecht): Computational complexity and short proofs of consistency statements
- Marek Kwiatkowski (VU Amsterdam): Ordinal Arithmetic via Infinite Term rewriting
- Sebastiaan Terwijn (Vienna): Intervals in the Medvedev lattice
- Yuri Gurevich (Michigan): Play to test
- Jouko Väänänen (Amsterdam): Dependence Logic
- Ramon Jansana (Barcelona): Quasivarieties and Gentzen calculi
- Wim Veldman (Nijmegen): Perhaps the Intermediate Value Theorem and perhaps more
- Valentin Shehtman (Moscow): On completeness and incompleteness in first-order modal logic
- Brian Semmes (Amsterdam): Decomposing 2->3 Abstract

Computational Social Choice Seminar
This is the programme of the Computational Social Choice Seminar, a series of occasional talks being organised at the ILLC. 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).
Website: http://staff.science.uva.nl/~ulle/seminar/

Speakers in 2006 included:
- Eric Pacuit (ILLC): Introduction to Interactive Epistemology
- Krzysztof Apt (CWI & ILLC): The Many Faces of Rationalizability
- Vangelis Markakis (Toronto): On Approximately Fair Allocations of Indivisible Goods
- Ulle Endriss (ILLC): Introduction to Social Welfare Orderings
- Krzysztof Apt (CWI & ILLC): Introduction to Mechanism Design
- Andreas Witzel (ILLC): The Stability of Hedonic Coalition Structures
- Fenrong Liu (ILLC): Optimality, Belief and Preference
- Joel Uckelman (ILLC): How Hard is it to Find Nash Equilibria?
- Eric Pacuit (ILLC): Some Comments on Strategic Voting
- René van den Brink (VU): Permission Values for Games with a Permission Structure
- Ulle Endriss (ILLC): Bidding Languages and Winner Determination for Mixed Multi-unit Combinatorial Auctions
- Arantza Estévez-Fernández (CWI): Bankruptcy Problems: From Talmud to Passepartout
- Maurice Koster (UvA): Cost Sharing and Rationing, an Axiomatic Approach

Computational Linguistics Seminar
The Computational Linguistics Seminar is a biweekly seminar for the computational linguists of the ILLC, with talks from ILLC members and invited external speakers. Topics cover the full range of computational linguistics -- that is, research that is or can be implemented in a computer programme, and tries to process or account for natural language data (which includes language modeling, statistical modeling, pattern recognition and machine learning methods, formal linguistic grammars, speech recognition, machine translation, computational semantics, and other topics that one currently finds at ACL, COLING, or in the CL journal).
Website: http://staff.science.uva.nl/~jzuidema/CLS/

Speakers in 2006 included:
- Remko Scha (ILLC): Data-Oriented Semantics
- Rens Bod (ILLC, St Andrews): Unsupervised Data-Oriented Parsing
- Ton van der Wouden (Leiden): Dutch as a Construction Language
- Antal van den Bosch (Tilburg): Implicit computational linguistics
- Peter Grunwald (CWI): Introduction to Modern Minimum Description Length Methods
- Reut Tsarfaty (ILLC): Hebrew Statistical Parsing
- David Ahn (ILPS, UvA): Stages of event extraction
- Joachim de Beule (AI-Lab, VUB Brussels): Fluid Construction Grammar
- Hartmut Fitz (ILLC): PDP model of complex sentence production
- Jelle Zuidema (ILLC): Estimators for Data-Oriented Parsings
- Reut Tsarfaty (ILLC): Kamvar, Klein & Manning's (2002) paper on probabilistic interpretations of classical clustering algorithms.

Appendix 4.2 Workshops and Conferences

Curious Minds: scientific reasoning in early youth
Date: 6 March 2006
Place: KNAW-gebouw, Amsterdam

The goal of this symposium was to give an overview of current research into the reasoning abilities of preschool children, both in the Netherlands and outside. Which talents, potentials and abilities do children aged 3-5 have, how are talents in different fields interconnected, and how can these talents be developed further? The main focus was on talents that could be considered part of the fields of mathematics, physics, technique, and logic.

Website: http://www.talentenkracht.nl/

Amsterdam-London Workshop on Modal Logic
Date: 16 March 2006
Place: ILLC, Amsterdam

The first Amsterdam-London Workshop on Modal Logic. Speakers included: Ian Hodkinson (Imperial College London), Robin Hirsch (University College London), Roman Kontchakov (Birkbeck College London), Mikhail Sheremet (Birkbeck College London), Mai Gehrke (New Mexico State University), Guram Bezhanishvili (New Mexico State University), Johan van Benthem (University of Amsterdam), Yde Venema (University of Amsterdam), Balder ten Cate (University of Amsterdam)

Wesbite: http://staff.science.uva.nl/~nbezhani/workshop/

GLLC 12: Games in Set Theory, Analysis and Topology
Date: 14 June 2006
Place: ILLC, Amsterdam

This workshop was the twelfth in an irregular workshop series called Games in Logic, Language and Computation. These workshops are intended as a informal and lively discussion platform, where both senior researchers and promising young researchers from different backgrounds can share ideas.

Website: http://www.illc.uva.nl/lgc/gllc12/

Forth and back for 40 years: three talks on p-morphisms
Date: 27 June 2006
Place: ILLC, Amsterdam

On the occasion of the 40th anniversay of the p-morphism, the ILLC hosts a special afternoon with three talks on the p-morphism. Dick de Jongh and Krister Segerberg each gave a talk on the developments in the sixties and seventies (these talks also formed part of the Logic Tea). Before that, in a joint talk, Helle Hansen and Clemens Kupke presented a modern, coalgebraic perspective.

Website: http://staff.science.uva.nl/~yde/ole.html

Formal models for real people
Date: 18 September 2006
Place: Doelenzaal, UB, Amsterdam

With the growth of the cognitive sciences comes an increasing interest in how we can model the cognitive and linguistic achievements of real people, in realistic contexts. There is also growing realisation that formal models can be of use here: they are formal but are not limited to modelling idealisations. In the workshop 'Formal models for real people' researchers from psychology, linguistics and philosophy presented and discussed work which showcases the applicability of formal tools to modelling non-idealised language and reasoning. Topics include, amongst others: causal reasoning, language acquisition, Theory of Mind, reasoning and autism.

http://oase.uci.kun.nl/~ikramer/realpeople/.

The 7th Logical Workshops 'Logic & Games'
Date: 24-30 September 2006
Place: Kazimierz Dolny, Poland

The Logical Workshops have been organized since 2000 mostly as a summertime science activity for students of philosophy and mathematics from Warsaw. This year the meeting was addressed to a broader audience. The Logical Workshop 2006 took place in Kazimierz Dolny, Poland, and was organized in cooperation with the Institute of Philosophy, Warsaw University and the ILLC. The main goal of the Workshop is to bring people interested in logic and game theory together.
Website: http://www.logika.uw.edu.pl/workshop/

Games, Logic, Language and Computation (GLLC 14)
Date: 3 October 2006,
Place: GLLC 14

This workshop was the thirteenth in an irregular workshop series called Games in Logic, Language and Computation. The GLLC workshop series provides an informal platform for researchers with an interest in logic and its applications in, amongst others, game theory, linguistics and computer science. GLLC 14 aims to emphasize the interface of computability theory, quantifier theory, and game theory. Speakers included M. Mostowski, B. Renne, G. Sandu, T. Tulenheimo, J. Uiterwijk and P. van Emde Boas.

Website: http://staff.science.uva.nl/~sevenstr/gllc14

Music, Mathematics and Computation
Date: 21 October 2006
Place: ILLC, Amsterdam

This workshop intended to establish interdisciplinary contacts within the fields of music, mathematics and computation, and to get an overview of the research that is done in some prominent research groups. Furthermore, research methods in these fields were discussed and the articipants tried to reach a consensus about the importance of the combination of these research disciplines. Speakers included Elaine Chew, Thomas Noll, Rens Bod, Henkjan Honing, Frans Wiering/Anja Volk.

4th Paris-Amsterdam Logic Meeting of Young Researchers (PALMYR-4): Logics for Belief Dynamics
Date: 4-5 December 2006
Place: ILLC, Amsterdam

Modern beliefs theories are able to shed light on dynamic processes involving beliefs, such as belief update, revision and fusion, because they use mathematical tools sophisticated enough to cope with such complex phenomena. This PALMYR was part of a conjoined effort between Amsterdam and Paris to bring young researchers to share their expertise and interest in mathematical approaches to belief dynamics.
Keynote speakers: Krister Segerberg (Uppsala) and Hans van Ditmarsch (Otago). The other speakers were Ivan José Varzinczak (IRIT), Brian Hill (Paris), Meghyn Bienvenu (IRIT), Paul Égré (CNRS), Tiago de Lima (IRIT), Cedric Paternotte (Paris), Guillaume Aucher (IRIT), Nicolas Troquard (IRIT), Mikaël Cozic (ENS Ulm)

Website: http://www.illc.uva.nl/PALMYR/PALMYR-4/

1st International Workshop on Computational Social Choice (COMSOC-2006), ILLC, Amsterdam
Date: 6-8 December 2006,
Place: ILLC, Amsterdam

The 1st International Workshop on Computational Social Choice (COMSOC-2006) took place on 6-8 December 2006 in Amsterdam. The aim of the workshop was to bring together different communities: computer scientists interested in computational issues in social choice; people working in artificial intelligence and multiagent systems who are using ideas from social choice to organise societies of artificial software agents; logicians interested in the logic-based specification and analysis of social procedures (social software); and last but not least people coming from social choice theory itself.

Website: http://www.illc.uva.nl/~ulle/COMSOC-2006/

Converging Paradigms? Comparing Temporal Frameworks for Logics of Knowledge, Belief, Action, and Choice
Date: 19 December 2006
Place: ILLC, Amsterdam

The main theme of the workshop was comparing and contrasting temporal frameworks for logics for knowledge, beliefs, actions and choices.
The invited speakers are Johan van Benthem, Jan van Eijk, Dov Gabbay, Valentin Goranko, Andreas Herzig and Wiebe van der Hoek.

Website: http://staff.science.uva.nl/~epacuit/socsit/

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