ILLC

ILLC₂ Magazine

In this issue amongst others:

Looking Back

'Incorporate the ILLC in one faculty'

Selling air

Dear alumnus, dear reader,

Like the first issue, the second issue of any magazine or journal has a special status. As in the process of mathematical generalization from 1 to 2 to n, one is tempted to view items of the first issue which return in the second issue as regular features which will be maintained in the future. Specifically, we have a main interview, this time with the dean of the Faculty of Science, Professor Hoogland. Similarly, Johan van Benthem's column and the description of an ILLC project are ingredients which we plan to keep in the future. The same goes for the interview with an alumnus, this time we have caught up with former ILLC "cover-girl" Nataša Rakić, who has recently returned to the Universiteit van Amsterdam.

Besides these regular features, we take a look at the Master of Logic program, which is becoming more and more international every year, and after last issue's "ILLC goes Georgia", Georgian Guram Bezhanishvili goes ILLC in a report on his visit to Holland. Finally, Anne Troelstra takes an exciting look back at his academic career before his retirement.

We hope you enjoy reading the issue.

On behalf of the editors,

Marc Pauly

Contents

Institutionalizing ILLC

Most of the present alumni of ILLC will remember the institute as a collection of good-humored scientists from several departments of the Universiteit van Amsterdam who happened to share a common interest. Sure, the institute was born in a long-standing tradition, but formally it was no more and no less than a bunch of fellow-travelers on the paths of logic.

Martin Stokhof (standing), scientific director and Peter Blok, managing director.

This relative "looseness" of the ties between e.g. Theoretical Computer Science and Philosophy of Language had the advantage that relations went as far as the subject matter and the interests of the individuals called for, without being hampered by external prerequisites for "normal science". The drawback of this kind of obligation-free interaction is that success cannot be stimulated or consolidated by external means (funding, personnel) either. The new organization of Dutch universities by the so called MUB Act in general and the implementation of this law at the UvA in particular makes that the above described situation is changing.

Under the MUB ("Modernisation of the Form of Government at Universities"), institutes are the central units, headed by a director who reports only to the dean (so much for democracy at the Dutch universities and anarchy in Amsterdam). And the UvA would not be the UvA if it had not interpreted the new regulations in the most extreme way; faculties and departments are administrative units which may guide long-term policy, but the institutes have financial primacy. Money is no longer transferred as a lump sum to the faculties. It is split into a part for research and a part for education, and in the future will even be allocated to individual institutes. The institutes are funded directly on the basis of their research plans (in the case of research institutes) or study credits (in the case of teaching institutes). Furthermore, the institute's director will be relatively free in his spending policy. Where in the past only subtle political pressure (and the threat to accept a chair elsewhere) convinced faculties to stimulate certain trends, nowadays the director can take such decisions himself, within the limits of his budget. Not all faculties have pursued this model to the same extent, and the redress of this imbalance will be one of the bigger challenges for ILLC in the years to come. Another will be to keep up that free spirit of collaboration in content, not in form, which has made ILLC into what it is, and what it should be.

Peter Blok
Managing director ILLC

Looking Back

There are at least two reasons for NOT saying: 'in the old days, everything was better', (a) because the editors asked me not to, and (b) because it is not true. I intended to write a rambling, disorganized, amiable piece, as a pleasant change to composing carefully organized mathematical texts – but in the end it turned out, after all, to be more or less chronological.

After my final examination in 1964, I became a mathematics instructor, which meant that I had to teach students in their first or second year how to do exercises in Analysis, Linear Algebra etc. The teaching was a - not unpleasant - routine; but now and then a task a little out of the ordinary came along. At one time there was a little epidemic of 'trisectionists', people who believed they had found a construction to divide an angle into three equal parts by means of ruler and compasses only. Mathematicians know that this is impossible, but some amateurs do not. It fell to my lot to answer their letters. When the second letter arrived, I decided to compose a standard answer, which ran as follows: 'Dear Sir, I checked your solution and found it to be entirely correct. In fact, years ago I found a solution myself, but did not dare to publish it because of the jealousy and the stubbornness of my fellow-mathematicians. Therefore I advise you to do as I did, and keep quiet. Yours etc.' But when the third trisectionist came along, I could not use it, because he came in person, sent on by the Amsterdam tourist office.

In June 1966, I got my doctorate (Ph.D.) under Heyting; the thesis was a contribution to 'Brouwer's programme', i.e. the development of mathematics according to the principles of L.E.J. Brouwer's intuitionistic philosophy of

mathematics. After my thesis, I did not want to do any more intuitionistic mathematics, I had become interested in the metamathematics of choice sequences, a basic concept of intuitionism. I obtained a stipend from ZWO (the precursor of NWO) and for a year went to Stanford, where Georg Kreisel resided, an expert on choice sequences.

In 1970 I became Heyting's successor; and to prove that in fact not everything was better in the old days, I only have to think of the extremely light-weight procedure for appointing professors in those days

My host at Stanford had a deserved reputation as a top logician, and also, perhaps undeserved, as a womanizer. When I came to his office for the first time, he talked for a long time, and I was thankful for my previous training in looking intelligent while not understanding. From the corner of my eye I scanned some booktitles on a shelf; one title was 'Seduction'.

Afterwards I understood it had been 'Deduction', and since then I have never needed convincing that our perceptions are influenced by our expectations.

I never felt so stupid as during my year at Stanford. My training in formal logic in Amsterdam had been very meager indeed, and Stanford at that time was bursting with clever Ph.D. students, Ken Kunen and Jon Barwise among them. I had a lot to catch up with. However, towards the end of that year I had some results. After that, back to the Mathematical Institute in Amsterdam. The next year, 1968, I was asked to become lecturer in Mathematical Analysis. My first reaction was to say NO! I don't want to do research in analysis, I want to do logic. But Heyting told me that I could do research in logic, provided I taught analysis, and that if I remained an instructor, life would not always be pleasant. So I accepted; but my first course in analysis was not a success. In the same year Heyting retired, and there was an interregnum filled by guests, the most notable of these being Dana Scott, with whom I shared Heyting's former office for a year.

In 1970 I became Heyting's successor; and to prove that in fact not everything was better in the old days, I only have to think of the extremely lightweight procedure

for appointing professors in those days (maybe my luck). Around that time, Dirk van Dalen was appointed at Utrecht; together we built up a regular curriculum in Mathematical Logic, where all the basic subjects were represented. At that time there were many mathematics students, and they stayed longer. They could afford to take a course now and then not for credits, but to satisfy their curiosity. So there was an audience for our logic courses. Since then things have changed dramatically: a shortened curriculum, more financial pressure on the students, ever fewer students. As a result, I decided this year not to give an introduction to constructivism, a subject which I had been offering every year in one form or another since 1968.

Up till 1980, roughly, my own research centered around choice sequences and Kleene's realizability and all its variants. My interest in realizability led to a Springer Lecture Notes in 1973, with chapters by Craig Smorynski, Jeff Zucker and myself, where much information on intuitionistic metamathematics was brought together. After 1980, choice sequences seemed to be played out: the research, one might say, had been too successful, and there were few open questions remaining, or so it seemed then. Some of this is continued and vastly generalized in topos semantics. However, I still recommend choice sequences as an interesting example to philosophers of mathematics. Realizability, on the other hand, is 'alive and kicking', and has penetrated into computer science.

In 1980 Heyting died, and he left his Nachlass to the Mathematical Institute. This caused me a lot of 'invisible' work: the ordering and cataloguing, with the help of several students as assistants, of Heyting's papers. The work we put in was invisible in the sense that it did not result in lectures or papers in journals, only in a report 'Index of the Heyting Nachlass'. Recently the Heyting archives have been moved to the State Archives at Haarlem. The archivists paid me

the compliment of saying that these were the best ordered and indexed personal archives they had seen in their career, and I am really a little proud of that. You might say this has been a labor of love.

Writing, with van Dalen, a lengthy two-volume introduction to constructivism, dealing with all the main techniques and results, was a way of taking stock of what had been achieved so far. The book came out in 1988.

After this lengthy introduction, what next? A brief interlude with linear logic followed. But after 1993 I left linear logic alone and started writing an exposition of elementary proof theory, a collection of results and techniques widely used, in mathematical logic as well as in computer science, but also widely scattered in the literature. It was intended as a book I could use for my courses. The subject was not completely new to me, since I had already encountered it in intuitionistic metamathematics. The second, revised edition of the resulting book, with Helmut Schwichtenberg as co-author, has been finished recently.

As the foregoing makes clear, I started as a mathematician, and that is what I still am. Switching from the Mathematics Institute to a group 'Logic and Theoretical Computer Science' and then to (the margin of) the ILLC made very little difference to me personally. Actually, moving to another building, no longer residing on the same floor as the mathematicians, made more of a difference, at least socially: I saw less of my colleagues in mathematics.

What did bring something new was the Master of Logic program. It was interesting and stimulating to meet students from such diverse backgrounds and nationalities. It also made it worthwhile to teach some subjects for which there would have been not enough interest otherwise.

It almost seems to me that since I moved to the Euclides building there has been a paucity of

memorable anecdotes. But I recall a fairly recent one. Some years ago I received a visit, one afternoon, from a member of the 'Bund zur Verbreitung unerwünschter Einsichten', the Association for the Dissemination of Undesirable Insights. This Association turned out to be a most curious left-over from the turbulent sixties, a reservation for elderly activists, said to exist only at Karlsruhe at the time (still). They were lobbying for international support in their quarrel with the University. Of course I withheld support, since, as everyone knows, I am a staunch supporter of the establishment.

It looks as if we are a society of spoiled children, who want more, and more, and MORE ...

The most rewarding experience of my career? Undoubtedly the contact with my Ph.D. students. (The least rewarding experience I try very hard to forget.)

Why am I leaving at 61? First and foremost, for reasons of health; I feel that I can no longer fulfil my tasks as they ought to be fulfilled. But there is more. Thinking of our young researchers, I feel that they are motivated by intellectual challenges. But when I listen to politicians, captains of industry, decision-makers and the like, the only message which gets through to me, regardless of the packaging, is that science, even fundamental research, is exclusively justified by results which bring material benefits one way or another. It looks as if we are a society of spoiled children, who want more, and more, and MORE ... This is the background against which we request funding for our projects. Applying for outside funding shows commitment to one's projects, I am told. But I don't fit into this, and I want out!
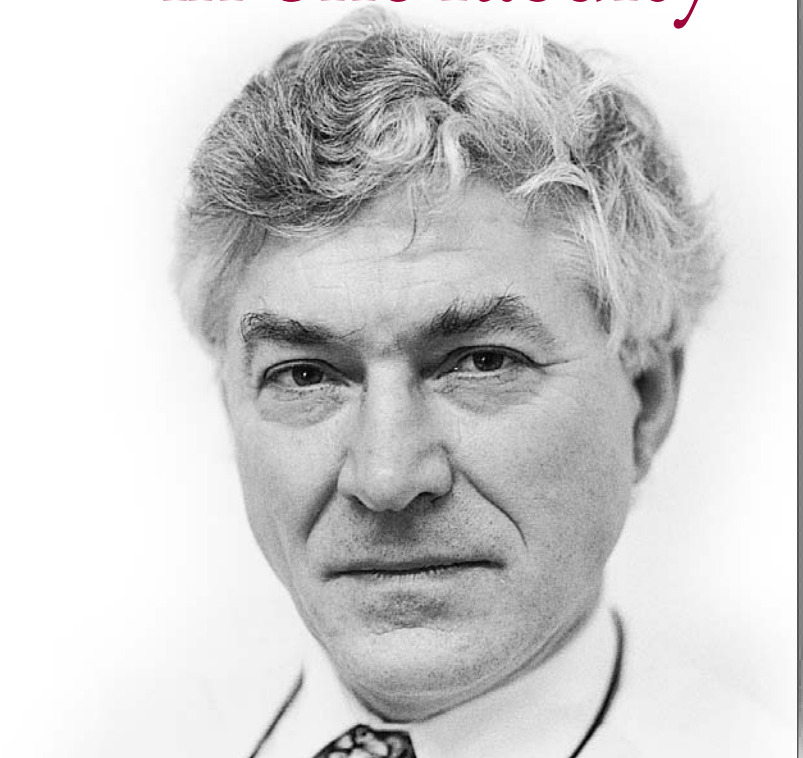
And afterwards? The intellectual void? No fear!

Anne Troelstra

AN INTERVIEW WITH WALTER HOOGLAND,
DEAN OF THE FACULTY OF SCIENCE

'Incorporate the ILLC in one faculty'

Professor Walter Hoogland, dean of the Faculty of Science, works in the brand-new office building Matrix 4 on Kruislaan. The sound of lustily croaking frogs can be heard in his study.

By origin Walter Hoogland is an experimental high energy (particle) physicist. For years he conducted experiments at the NIKHEF (the National Institute for Nuclear Physics and High Energy Physics) and from 1983 he was the director of science there. In 1989 he was appointed director of research at the European Laboratory for Particle Physics CERN, returning to the Universiteit van Amsterdam in 1995.
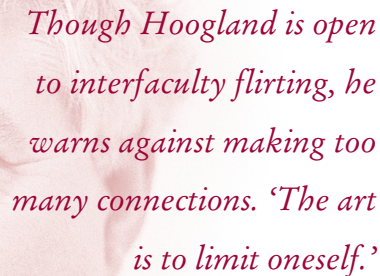
From 1996 Hoogland coordinated the integration of three faculties, those of Biology, of Chemistry, and of Mathematics, Computer Science, Physics, and Astronomy. As of 1 January 2000 Hoogland is dean of the new Faculty of Science.

Hoogland is formally responsible for administration of the ILLC. 'The science faculty holds the secretaryship of the institute. But my responsibility is obviously limited because the ILLC is an interfaculty institute.' The fact that the ILLC is an interfaculty institute is significant, Hoogland observes. For instance, from a financial and organizational point of view. 'At the science faculty we have a specific philosophy of management, a view on the relationship between faculties and institutes,' says Hoogland. 'And our view does not agree with that of the faculties of humanities or social sciences. Our philosophy assumes that institutes function quite autonomously. The faculty appoints a director and

gives the director a great deal of responsibility. The other faculties give the institutes a much weaker position. This leads to problems. These problems relate for instance to the budget', Hoogland remarks. 'We are currently shifting to lump sum financing. The institute receives a certain budget and is responsible for arranging its affairs within the budget. The same system should apply to the ILLC. We give something, the humanities and social sciences add their bits, and the total sum forms the ILLC budget. Surely we can't have a system in which the director gets money from the sciences, while the money of the humanities and social sciences goes to the chairman of the department. That's why I'm soon going to talk with the other faculties about a uniform budget

system.'

Hoogland is open to cooperation beyond the confines of the faculty. 'I am not a protectionist. I act

Though Hoogland is open to interfaculty flirting, he warns against making too many connections. 'The art is to limit oneself.'

according to the interests of the faculty, but I recognize that a country with an open market is very likely to prosper. In the same way a faculty should also have an open policy towards scientific developments.'

Science cannot be simply subsumed in a faculty or domain, says Hoogland. 'I look beyond the confines of my faculty and talk with colleagues in other faculties to see whether a constructive relationship can be formed. But often problems occur, and then self-interest turns out to play an important role. People are often afraid of being cut back on their budget. So on that side there is often more protectionism than on the part of the faculty dean.'

Though Hoogland is open to interfaculty flirting, he warns against making too many connections. 'The art is to limit oneself. With a little imagination you see lots of connections, but don't bite off more than you can chew. First you'll have to find people who want it. Only then can things happen.' Hoogland tries to stimulate people and make them enthusiastic. 'If there is a basis for cooperation, you need to be actively encouraging. The ILLC can be cherished as a successful example in this connection. It stands the test of criticism.' For Hoogland, therefore, the importance of interfaculty cross-fertilization is beyond dispute. Its implementation is a different story. 'The question is whether the form of the interfaculty institute is the most suitable for practising

interdisciplinary science. You need clarity, and something that is a part of several faculties tends to be ambiguous. Of course, a faculty which places researchers with the institute wants to defend the interests of its people. At the same time this leads to a lot of tension, which is not in the institute's interest.' 'I think the most sensible thing is to incorporate the ILLC in one faculty,' says Hoogland. 'And this faculty manages the budget. You can then always try to arrange supervision of the institute in such a way that the interests of the other faculties are represented as well.'

Faculty and institute think about research, but the research school also wants a say in the matter. Hoogland is perfectly happy to allow the science faculty to take part in the research schools - 'if it makes sense'. 'The only question is how long research schools will continue to exist in their present form.' Hoogland believes it should be clear who bears responsibility for the research. He thinks this should fall to the research institute and the faculty. 'We want to conduct a programmatic policy, to determine the direction of research. We can harmonize this research nationally, but it shouldn't be the case that the head of the research school is responsible.'

Hoogland does not see an important role for the research schools which continue to orient themselves to the Netherlands in times of globalization. 'As the head of the NIKHEF I and two colleagues from Belgium and North Rhine-Westphalia set up a programme for a two-year school for research assistants. In the end this project was mainly confined to teaching, but a research school could do something similar in terms of research.' A research school of international stature only stands a chance when it has a lot of quality on board, Hoogland notes. 'Then you get the opportunity to expand, to establish contacts. In this way a research school can try to be a kind of motor for this kind of international ambition.'

The ILLC research institute

could also be such a motor. 'It's unique in the Netherlands. It has, besides, a couple of stars who put the institute on the map. Johan van Benthem, but also the winners of the pioneer prizes, and the fellows of the Royal Netherlands Academy of Arts and Sciences. Hoogland finds nothing to fault in the research climate at the ILLC either. 'Good people have to be intrinsically good, but also operate in an environment which stimulates excellence. The institute clearly meets these requirements.'

The ILLC could strengthen its position in Europe with a healthy measure of aggression, Hoogland thinks. 'They're already approaching comparable set-ups in Europe, which may lead to a consortium of institutes. But they could give it more publicity.' Nevertheless, Hoogland is happy about the current position of the ILLC. And, smiling: 'Success breeds success'.

Hoogland also wants to emphasize that the ILLC needs to keep a close eye on the connection between the various disciplines. 'Research runs the risk of becoming kaleidoscopic. A bit of humanities, a bit of social sciences, and a bit of exact sciences. The connection needs to be experienced by the members of the institute community. When I was recently there, I got the impression that contacts between the various sections could sometimes be improved.' Hoogland would prefer to see the ILLC as a haven for people who see an important surplus value in the interaction between the various discplines. 'That's why they need to find it attractive to be there.'

To promote coherence, the activities of the ILLC should be grouped around a limited number of themes, Hoogland believes. 'If there are too many themes, everybody converges and gravitates. This means that the group of themes as a whole is coherent, but the separate parts are liable to become monodisciplinary. And scientists should have breadth of scope.'

Ward Wijndelts

INFORMATION IN CONTEXT

Dissemination of Logic in Secondary Schools

The Spinoza Logic Dissemination group has started a collaboration with AUP (Amsterdam University Press) for the production of a series of short secondary school textbooks in the field of logic, broadly conceived.

Several years ago, AUP launched a series of secondary school text booklets under the generic title Text in Context, with modern presentations of famous literary texts from the Middle Ages and the Dutch Golden Age. These booklets were produced in close interaction with the intended 'market': the authors were supported by an enthusiastic team of secondary school teachers who gave feedback based on trial runs of the material in their classes. The series has proved to be a remarkable success. (One of the booklets, Van den Vos Reijnaarde, was quoted at some length in Albert Visser's inaugural lecture as professor of logic, last March.)

To create a future for logic research we will need a broad basis in the world of education, and in society at large.

While the production of multi-volume methods running through the whole secondary school curriculum is firmly in the hands of the traditional educational publishers, AUP has discovered a market niche in 'method independent' and 'fresh' secondary school material.

The present AUP-Spinoza collaboration intends to follow-up on this success, with a series of titles in the broad field of Information in
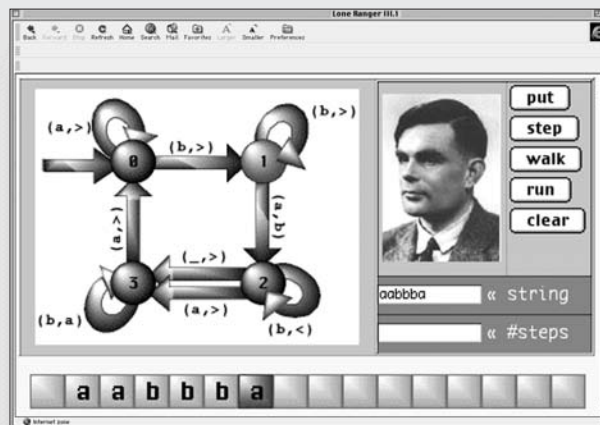
Context. This covers many topics somehow connected with logic: Computing with Language and Symbols, the Evolution of Intelligence, Information Flow through the Internet, and so on.

Work has started on the first volume, on Calculating, Reasoning and Programming. The text will be based in part on course material developed for the Universiteit van Amsterdam's first year 'beta-gamma' curriculum in Reasoning and Programming. The current 'authors collective' consists of the foursome Jan van Eijck, Jan Jaspars, Jan Ketting and Marc Pauly. Other Spinoza Logic in Action co-workers might become involved in future productions.

What makes this initiative special is the fact that the material we intend to produce will be WEB-supported. The first volume will have links to logic animation programs developed by Jan Jaspars for use in

undergraduate logic teaching at ILLC (see his animation on this page).

The production of the first Information in Context booklet is sponsored by Spinoza Logic in Action. For the production of future volumes, financial support will have to be procured from elsewhere.

Potential sponsors can bear in mind that money spent on dissemination of logic is well spent. To create a future for logic research we will need a broad basis in the world of education, and in society at large. One of the aims of this AUP-Spinoza joint action is to contribute to the creation of such a basis.

For further information on this initiative, contact the coordinator of 'Spinoza Dissemination of Logic': Jan van Eijck, at email address jve@cwi.nl

Jan van Eijck

Alive and Kicking: the Master of Logic program in its 5th year

Ingrid van Loon

The Coordinator

In the spring of 1995 I was working outside study hours as a part-time employee at the ILLC. Usually I was asked for boring, time-consuming jobs left on the shelf: processing questionnaires, punching in data, large postal consignments. One of these jobs was dispatching an enormous mailing list for the Master of Logic program which had just been set up. A poster was being sent to hundreds of addresses in and outside Europe: 'Anyone who is interested in Logic will know why I chose Amsterdam' (see also p 14 of this magazine). Another one of my tasks was to send the brochure advertised on the poster. Many

requests came in for these. After graduating in September 1995, I entered full-time employment at ILLC as a project worker. And I expected the third floor of Euclides to be full of young talent, the lecture-rooms filled with all kinds of nationalities, Master's students from all over the world who were attracted by our alluring poster and all my efforts. But I was greatly disappointed: only one (!) student had applied and been admitted to the program. It was decided that these were 'teething problems' and that we would press ahead. This turned out to be a good decision: so far the number of students has just about doubled each year: from one student in 95/96 to two in 96/97 to five in 97/98 to eight in 98/99. The top was reached this year: a grand total of 14 Master of Logic students, 6 exchange students, and 4 contract students, of whom I am proud to be the coordinator. So, four years later the high hopes have been

fulfilled. The lecture-rooms and the corridors of the ILLC are now populated by young and highly talented foreign students. The group is extremely mixed: 8 of the 24 students are women; their background varies from theoretical physics to mathematics to philosophy; and they come from no fewer than 17 different countries

In this article we want to find out how this internationalization is experienced in the lecture-room. After all, teaching a group with 7 different nationalities and backgrounds is likely to be different from teaching a group of Dutch students who have all come down the same road. And what is it like for the students? In a short interview with Yde Venema we put this question to him. An interview with Marie Nilsenova, a Czech Master of Logic student, is published integrally.

Yde Venema

The Lecturer

Yde Venema teaches a Modal Logic class together with his colleague Alexandru Baltag. Their class contains 5 Master of Logic students, 2 exchange students, and 3 regular Dutch students. Yde finds it hard to say whether there is a difference in background between Dutch and foreign students. The

background is the same on average, but there are big differences between individuals. In his view, it is not the mix of nationalities which may lead to problems, but rather the big individual differences. The results of the Dutch and foreign students are also about the same. But he adds that no fewer than five Dutch students have stopped attending the class. A possible reason for this is an insufficient grounding and misjudgement of the time that needs to be devoted to

the subject. One major difference seems to be that Master of Logic students work much harder than Dutch students. Finally, we asked him whether he thinks that the Dutch students may have disliked attending the classes with foreigners, and especially the fact that the subject is taught in English. No, says Yde firmly, on the contrary, I have the feeling that the Dutch students enjoy the international atmosphere.

The Student

Marie Nilsenova

Ingrid van Loon

I found out that it was especially true of semantics. They told us that the Handbook of Logic and Language was the Bible of the field - I don't know what that makes ILLC - and, basically, whatever topic we ran into, Amsterdam was somehow always related to it. So I thought that I would really like to get into a Ph.D. program here but knew it would be difficult with my background, so I decided to apply to the master's program instead.

What are some of the most significant differences between the UvA and the university in Prague?

It's certainly the facilities: in Prague it's often a problem to get relevant literature and journals and there are never enough computers. I think there is also much more socializing here, not necessarily among students but in terms of events organized by the institute. And everything seems to be younger in spirit here (I'm trying to avoid the word 'dynamic'). But hopefully that's changing in Prague as well.

What differences in academic background did you notice between you and your other classmates?

There were very few linguists here - most people have a philosophical or mathematical background. Anyway, that's what I thought in the beginning. My definition of what linguistics is has undergone some major changes lately. It's really nice, though, talking to people that have a very different perspective on things.

Have these various backgrounds also created some problems in the courses you have taken, especially when the courses are too large to take all the individual histories into consideration?

How and why did you come to the ILLC? Where did you study before coming here and what is your scientific background?

I started studying Czech and English literature in Prague but gradually got more and more interested in linguistics. After my first-level exams I went to the U.S. for a year as an exchange student and then applied to a master's program in generative linguistics in Norway. This took two years and by the time I was done, I knew I wanted to do more semantics and philosophy of language. I also missed my country and friends, so I went back to Prague and took classes in logic and philosophy. I knew from before that linguistics was really big in the Netherlands, and the other way around, and now

Not really, the scope of the courses offered is so broad that everybody can find what suits them best. Of course, given the interdisciplinarity of the program, there are always parts one may be lacking the proper background for and one needs to fill the gaps. But in the end it more or less equals out. I took courses where there were three people or eighteen and I didn't really notice much difference. Maybe it's not so

They told us that the Handbook of Logic and Language was the Bible of the field - I don't know what that makes ILLC - and, basically, whatever topic we ran into, Amsterdam was somehow always related to it.

relevant how many people there are in the classroom as long as everybody feels like they are taking part, that they have a responsibility for the discussion. It's nice when some ends are left open, when you don't feel that what is being presented to you is a finished chapter.

Do you mostly interact with other international students from the Master's program, or do you also have contacts with Dutch students, e.g. working on homework assignments?

Mostly with the Master of Logic students because in the classes I have been taking they outnumbered the Dutch. I knew some Dutch students at UvA from before but they are from a different department. I think the major barrier for getting to know more

Dutch people is the language, otherwise you always remain an outsider - but that's a vicious circle. Even when you take language courses, if you have nobody to talk to regularly, you'll never get beyond the stage when you go to a store, you say something in Dutch and they answer in English and that's it. Sometimes they answer in Dutch but then the next thing I say is usually in English anyway because I'm so shocked that I can't find the right words.

How tight is the social web outside of the classroom? There were times when the international students organized international dinners regularly...

There are things going on but nothing regular, as far as I know. Sometimes we go out to see a movie or have a drink and there have been some parties as well. I probably talk most to the Master of Logic students I share the office with and also to people from classes where we could work on assignments in groups. You start discussing the assignment and end up having a glass of wine.

What are your plans after you have completed the Master's program? Do you know whether many students consider staying in the Netherlands afterwards?

I actually started working for a speech technology company in Belgium this April. I am almost done with the coursework so I will write my thesis while I'm working. As for other people, I know of at least one who is staying in Amsterdam - but that's for personal reasons. Sometimes I find it difficult to be abroad, but if I really feel the need, I can get on a bus or a train and I'm in Prague overnight. But there are people here from more distant countries - I imagine it must be harder for them. A friend who is from Bangladesh has a small son there and I know he misses him a lot. Another friend of mine is from Georgia and he often looks like he's going to board the next plain to Tbilisi - he says that family ties and relations with friends are very tight there so no Georgian can

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live abroad for long. Luckily, there is internet so everybody can get the news from their country, or listen to Georgian atonal music and Indian pop.

You are Czech by origin, and you studied in Norway and the Netherlands. Any funny anecdotes from a world-traveller?

According to Norwegian television, most Americans think that Norway is either a name of a Chinese restaurant or the capital of Sweden. And not long ago, Europeans were no less ignorant about each other. I remember going to Belgium in 1992, people asking me what it was like living in a country where there is a war going on. Yugoslavia was prominent in the news at that time so it somehow got to represent the whole former Eastern bloc. I think that this has really changed. Maybe some eyebrows are secretly raised when Czechs proudly refer to their capital as 'the heart of Europe' and there are certainly a lot of differences among European countries still. But I don't think anybody feels strange anymore just because they come from the opposite side of the curtain. Places like the ILLC where you can meet people from different continents help to make the world even smaller and that's really nice.

For information on the Graduate Program in Logic: www.illc.uva.nl/gpil or e-mail to *gpil@science.uva.nl*

Ingrid van Loon
Marc Pauly

On the Varieties of Goodness

Once upon a time, as a freshly arrived student in the year 1967, I was given a study guide of the mathematics department in which a professor of analysis had written a most beautiful line. We were in this academic field because of - as he put it in Spinozesque Dutch: "de vreugde die wij beleven aan de zuiverheid der gedachtengangen" - the joy we experience in the purity of the trains of thought.

Pure researchers may still be the Chosen, but their Holy Halls are often seen as backyards now and their high priests as witch doctors. As my favourite critic says, basic researchers ask questions in a very small group of international colleagues, and then proceed to answer them to their own satisfaction. Naturally, this is safe business, as there will be an evolutionary bias toward asking solvable questions. Compare this with the boldness required when questions are given externally, say by the world of technology and business, without the possibility of manipulating our value judgments concerning the answers. This alternative view of achievement shows an eclipse of our cultural prestige. And then, there is also environmental pressure in the university and society: people want to see practical repercussions of fundamental research. Or at least they demand accountability: what is being done why? The serene joy of an inner circle of cognoscenti is not enough.

Ivory towers are permeable. When the environment says such things, even the purest researchers feel similar doubts inside. At least, I do! After all, that joyful purity can also be the brain death of iterated mathematical ritual, performed in mutual protection societies. And accountability resonates, too. Colleagues who just demand money for their research, and routinely get upset when 'The Hague' does not come through, annoy me. They think they have a God-given right to be paid for doing the things they enjoy most. By all the laws of social justice, the reverse seems true: they themselves should be the ones paying for that privilege! But though scientists may admire bold and paradoxical thought experiments in general, this admiration stops well short of their own financial interests.

Nevertheless, this column is not a modern 'guilt piece', where I must now tearfully apologize for my own errors and those of my ancestors. I unashamedly believe in the value of fundamental research. But I also think ILLC needs to change its self-image - and perhaps its pecking order. Certainly, our environment has become more diverse. But then, so are the types of talent that we house!

Column by Johan van Benthem

There are two aspects to this. One is that we are not a purely methodological institute, where technical scoring skills are all-important. We are also driven by curiosity as to a real subject matter: the workings of computation, information, and cognition. That by itself makes for a more complex agenda. The greatest good from the latter point of view is not the most difficult theorem, but the deepest insight. Another aspect is the diversity along both these dimensions: method and content. Our director has started a discussion with our key researchers on these things, but let me use my poetic license here to just praise diversity. Intellectual achievement in our world comes in many kinds: having an insight, proving a theorem, writing a program that suddenly makes your abstract ideas work (a great experience), applying fundamental ideas in new, often unintended settings, influencing the way others think. If we list some landmark and trademark achievements of ILLC over the past decade, we see they show this same variety. Dynamic semantics was a break-through 'semantic model', though it has generated few theorems or algorithms. The same is true for a new computational-linguistic architecture like data-oriented parsing. Much of our mathematical logic work in modal logic and provability is 'theorem proving', as is much of our best work on complexity theory. But there is also break-through 'computational realization', as in the work on constraint satisfaction, and more generally, the new computational logic stream. There is just no linear preference scale on which one can measure these intellectual achievements against one another. And that is just fine.

In accordance with this observation, one would also expect different types of talent in our academic ranks. Not just in the total composition of the 'corps d'élite', but also inside its members. Curiously, in The Netherlands, people are often classified as 'theorists' or 'applied scientists' as if these were whole-sale choices one must make once and for all. But this does not fit the known realities of the human mind! Some people excell at both. Role models are easy to spot elsewhere. Take the world-class computer scientist Vaughan Pratt at Stanford, the father of our beloved dynamic logic, who proves theorems of the most abstract sort in algebra and category theory - but who is engaged, at the same time, in hands-on engineering of 'wearable' matchbox-size computers. In the first capacity he sings the virtues of clean basic software, in the second he advocates bypassing software and extolls boosting hardware. Who cares about the tension, when both are fascinating?

We should encourage these talents, too. And if it is too late for the established 'classified' researchers, we might at

least encourage them in our students: by any count, the most important output of a basic research institute. Students show the same diversity: some are theorem provers, some modellers, some programmers, and we need all those kinds of talent represented in our Ph.D. curriculum.

Just a word to the critics of this view. If you want the safety of a 'fixed game': then all this may be threatening. It is much safer to labour on some list of open problems from a mathematics book that are supposed to be 'important', and feel the warmth of the small group of specialists doing the same. Such withdrawal may even be fine: diversity values ecological niches. But there is often also a moral undertone to such criticisms: the diversity is wrong, and it takes away from the clear and single-mindedness of our (usually theorem-proving) founding fathers. Now here, I hate to disappoint you. Great scientists are seldom single-minded, and they have worked on many things, from theoretical to applied. Our own founding father Beth did mathematics, philosophy, passionate university politics, and wrote project proposals to Euratom, surely the most unhealthy funding agency he could find in the fifties. Even though children prefer to think of their parents as pure spirits, whose Platonic love resulted in their virgin birth, science is not like that.

What I do want to preserve is stability at another level. Does ILLC need to change its research agenda, or working habits drastically? I do not think so: it just needs to recognize and value the diversity of what it is known for. Indeed, rushing after the latest trends leads to a paradox: the more change, the greater uniformity. If you do the 'hottest topics' all the time, you get these generic internet homepages of research groups all doing the same topics, with the same icons (pet robots, learning technology), but without any apparent special fundamental 'edge'. So, by all means, let us keep the fundamentalist peculiarities of ILLC, such as its emphasis on logic and theory of computation, that make us recognizable. And then, whatever work we do with those imprints, I feel confident that ILLC's halls will always sound with joy in the purity of the trains of thought.

Johan van Benthem

Georgia Goes ILLC

A report on a visit to Holland
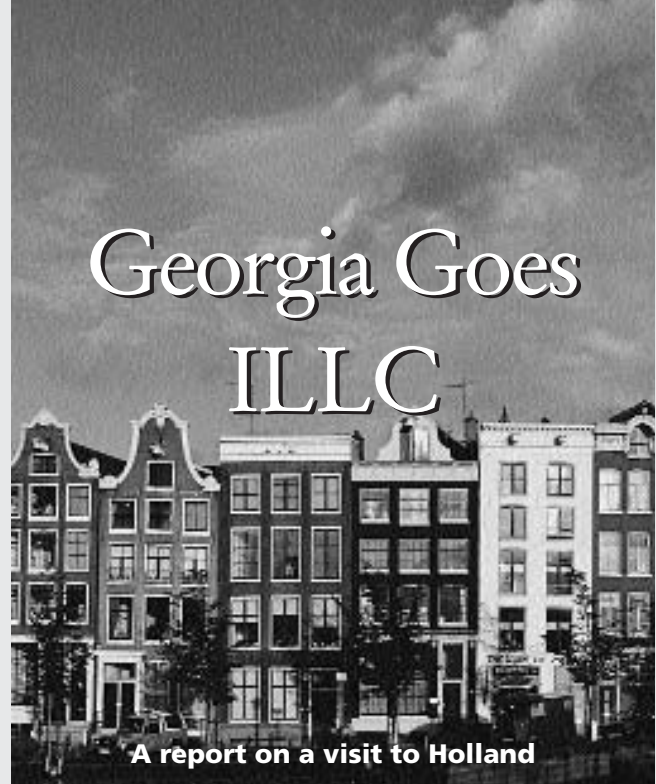
The co-operation between Georgian and Dutch logicians has slowly become traditional. It started in 1993 and has intensified since the Tbilisi Symposia in Logic, Language and Computation in 1997 and 1999. As for me, I established personal contacts with the ILLC before these symposia, when in 1996 a small group of Dutch logicians visited JAIST in Japan where I was working at that time.

In the beginning of 2000 I was invited to the Netherlands, the country where an important trend in mathematics and logic - Intuitionism - was born. I was leaving a country in deep economic crisis, a country where only the southern climate and character and, probably, also a sense of humor helps people live through winters with no electricity and central heating. I was coming to a country of famous logicians and football players; and also of tulips and windmills; to the country I only knew from books and pictures. (Unfortunately, I looked in vain for both the windmills and the tulips. However, luckily, I did see logicians.)

Some of my friends proclaimed that Holland was a northern country with all the typical features - gloomy weather and even gloomier relationships between people. It turned out to be quite warm. The first impression was an outstanding hospitality and friendship that I felt from my colleagues everywhere I went, both in Amsterdam and Utrecht. The original idea was that I would stay in Holland for one month, but as time went on, one month became three. And I did not leave Amsterdam empty-handed, taking with me computers and extensive literature for the department of Logic in Tbilisi - a gift from the Dutch colleagues.

It was a pleasant surprise to see how many positions there are for logicians at the ILLC. I also have to mention how challenging and important it was to work with Dutch scientists. Equally interesting were the seminars I participated in. They were always challenging and comprehensive.

I hope very much that the ongoing co-operation will continue and will be extended to other spheres and subjects.

Guram Bezhanishvili

Selling air

Nataša Rakić from Belgrade, Serbia, got her Ph.D. at the ILLC in 1997. After finishing her Ph.D. thesis entitled "Common Sense Time and Special Relativity", she went to work for Magnus Management Consultants before returning to the Universiteit van Amsterdam. For two years she was ILLC's 'cover girl' for the Master of Logic program. A poster with her picture and the text 'Anyone who is interested in logic will know why I chose Amsterdam' was sent to universities all over the world for marketing purposes.

How did you become a Ph.D. student at ILLC?

After finishing my undergraduate studies in Yugoslavia, I came to Amsterdam with the EC exchange program TEMPUS for 9 months, and I then applied to become a Ph.D. student at the philosophy department of the Universiteit van Amsterdam.

And anyone who is interested in logic will know why you chose Amsterdam?

Yes, it's the place to be, because of its history but also because of the people working there now. For the TEMPUS program, I was actually also considering Siena, but then I thought, I'll go to Siena for vacation someday anyhow, and the choice was definitely a good one.

Do you still remember what your Ph.D. thesis was about?

Let's see, I was trying to show how common sense ideas about time can co-exist with the notion of time used in the special theory of relativity (STR). People would always say "The common sense theory of time is incorrect, since it contradicts the theory of special relativity." This has been used to argue e.g. against the philosophical A-theory of time according to which there is past, present and future, and temporal becoming is considered to be the fundamental characteristic of time. Future events do not yet exist as present, but they will become present, as present events will become past. Consequences of the STR such as the relativity of simultaneity and time dilation seem to challenge this common sense conception of time, but one of the results of my thesis is that both theories can co-exist in the same model.

So you had to learn quite some physics as well?

Yes, and the STR goes very much against your intuitions. After

studying it enough you think you understand it completely, all the paradoxes and strange consequences. But when you go away for ten days to do something else, you feel completely lost again, as if you don't understand anything anymore. So although I showed that the STR does not have to be so counterintuitive after all, it is still quite difficult.

Any advice to the current Ph.D. students?

Well, one piece of advice is: just listen to Johan van Benthem.

After you took your Ph.D., you decided to exchange your life at the university for life in "the real world". What were the reasons for that decision?

There are just so many possibilities out there, and while in a way I'm sorry that I don't do anything with logic anymore, I am interested in a lot of different things besides logic. There is a whole world outside, e.g. do you know how the Albert Heijn business works? It is actually quite complicated if you consider all the processes involved. Besides this, I wanted to get to know new people outside of the university. In the last two years I have met a great variety of people with various levels of education, political opinions, etc. Also, it is very difficult to get a permanent position in Academia these days. And based on my experience of leaving Yugoslavia, the prospect of spending my life moving from one country to the next did not appeal to me. I wanted to have a home somewhere, and that is Amsterdam.

How did you decide to become a consultant?

I thought, well, what can you do when you're a philosopher? This was a very difficult question for me, but it turns out that nowadays you have these people who sell "air", in other words, who sell their so-called "strong personality, analytical and communication skills" - they are called advisors. So I wrote a letter to different management

consultancy firms and I got many responses. I ended up working for Magnus Management Consultants, a company specialized in IT business solutions with quite a young team of employees.

What work do you do now as a consultant?

Companies hire us to reorganize their business using IT tools in order to increase their profitability and market position. We develop a new plan for them which is then implemented together with certain software packages. On the one hand you have packages that handle logistics, financial bookkeeping, controlling, human resources, etc. all in an integrated framework, and on the other hand you have the so called e-business packages that handle e-business, that is, doing business on the Internet. This implementation part distinguishes us from many other consultancy firms which just move in, give advice, and leave.

Did your training in logic facilitate certain aspects of your work?

When you make a business model of how an enterprise works, these models have to be very detailed, you need to talk to a lot of people. This aspect of the work was quite easy for me, because logic taught me to think in terms of formal models.

What are your plans for the future?

Starting in May, I will be working at the Universiteit van Amsterdam, more specifically for the Informatiseringscentrum, which does IT projects for the UvA. The work will be similar to what I did at Magnus, improving "university business" through the application of information and communication technology.

Marc Pauly