

CV documentation

Michael Moortgat

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Curriculum vitae

1.1 PERSONALIA

NAME Michael J. Moortgat
FUNCTION Professor of Computational Linguistics
ADDRESS Department of Linguistics
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E-MAIL M.J.Moortgat@uu.nl
URL <http://www.uu.nl/hum/staff/MJMoortgat/>
BORN June 8, 1954, Willebroek (Belgium)
NATIONALITY Belgian
MARITAL STATUS married, two children

1.2 EDUCATION

1988 Ph.D., Philosophy, University of Amsterdam (promotores: J. van Benthem, F.G. Droste)

1976–1977 Sprachwissenschaft, Universität zu Köln.

1976 D.Phil., Germanic Philology & General Linguistics, Leuven University.

1974 B.A., Germanic Philology, Leuven University.

1.3 POSITIONS

1989–PRESENT Professor of Computational Linguistics, Utrecht Institute of Linguistics OTS, Utrecht University.

1989 Visiting Assistant Professor, University of Washington, Seattle.

1. CURRICULUM VITAE

1977–1988 Researcher, Dutch Lexicological Institute (INL), Leiden.

1.4 RESEARCH MANAGEMENT, ADMINISTRATION

2002– . . . Association for Logic, Language and Information (FoLLI).

2007–2012. President.

2012– . . . Management Board, Senior Member.

2002–2007. Standing Committee, European Summer School on Logic, Language and Information (as of 2004: Chair).

1998–2007 Steering Committee, Spoken Dutch Corpus.

2002–2005 CoLogNet, EC Network of Excellence in Computational Logic. Coordinator Logic and Natural Language Processing.

2001–2004 Coordinator Linguistics Programme. Utrecht University.

1989–2007 Research Committee, Utrecht Institute of Linguistics OTS, Utrecht University.

1989–2006 Executive Committee (Opleidingsbestuur), Program in Cognitive Science (CKI), Utrecht University.

1992– ?? Scientific Board Dutch Graduate School in Logic.

1992– ?? Scientific Advisory Board Institute for Perception Research (IPO), Eindhoven.

1992–1995 Scientific Board Esprit Basic Research Action 6852, DYANA-2 (Dynamic interpretation of natural language).

1990–1992 head Department of Linguistics, Utrecht University.

1.5 EDITORIAL BOARDS

▷ CLIN, Computational Linguistics in the Netherlands Journal. (Editorial board, 2011–)

▷ Journal of Algorithms in Cognition, Informatics and Logic. Elsevier. (Editorial board, 2008–)

▷ Logic Journal of the IGPL. Oxford. (Editorial board)

▷ Journal of Applied Logic. Elsevier. (Editorial board since 2003)

▷ Research on Language and Computation. Kluwer. (Editorial board 1999–2006)

- ▷ Grammars. (Editorial board 2004–2006)
- ▷ Lecture Notes on Logic, Language and Information, Springer. (Editor in Chief, with Valentin Goranko. 2004–)

1.6 GRANTS, PRIZES

- 2007 UU/UC Collaborative Research Grant. (Stabler UCLA, Moortgat UU)
- 2004–2005 ‘Generative Grammar and Deductive Systems’/‘Grammaire générative et systèmes deductifs pour le traitement des langues’. Van Gogh Exchange Programme VGP 30-605 with LaBRI/Signes Bordeaux.
- 2003–2005 E-learning in Computational Logic. Dynamic teaching materials for the European Summer School in Logic, Language and Information.
- 2002–2005 CoLogNet. Network of Excellence in Computational Logic. Funded by the Future and Emerging Technologies division of the IST Programme. Coordination Area 6: Logic and Natural Language Processing.
- 2001–2002 Interactive teaching tools for Linguistics. ICT Curriculum Innovation.
- 1999–2000 E-learning methods in computational linguistics. Project ‘Kwaliteit en Studeerbaarheid’, Ministry of Education.
- 1999–2004 Spoken Dutch Corpus (CGN). Workpackage Syntactic Annotation. NWO/Nederlandse Taalunie. (390 kEuro)
- 1998–99 ‘Grammatical resources and Minimalism’. LOT-UC Exchange Proposal. Principal researchers: Keenan, Stabler (UCLA), Moortgat (OTS).
- 1998–1999 ‘Grammatical resources, proof nets and natural language analysis’. Van Gogh Proposal VGP 30–502. Teams involved: INRIA Nancy, OTS Utrecht.
- 1995–1998 ‘Grammatical Logics’. National Science Foundation Grant SBR-9510706. Principal investigators: R.T. Oehrle, M. Moortgat.
- 1992–1995 ‘Dynamic Interpretation of Natural Language’. Esprit Basic Research Project 6852 (DYANA-2). Project manager: Frank Veltman. Task coordinator Grammar Architecture: Michael Moortgat. Teams involved: ILLC Amsterdam, CCS Edinburgh, CIS München, IMS Stuttgart, Tübingen, Oslo, OTS Utrecht.
- 1989 Prins Bernhard Fonds Prize (Linguistics) of the ‘Hollandsche Maatschappij der Wetenschappen’ (Dutch Academy of Sciences).

1. CURRICULUM VITAE

1.7 VISITING PROFESSORSHIPS, GUEST LECTURING

- 2011 (May) Guest Professor. Universitat Politècnica de Catalunya. Barcelona.
- 2008 'The syntax-semantics interface in Categorical Grammar'. PhD Course, Netherlands Graduate School of Linguistics (LOT), Utrecht, July, 2008.
- 2007 (Nov/Dec) Guest Professor. INRIA, Université de Bordeaux.
- 2007 'Symmetric categorial grammar'. Advanced course, European Summer School in Logic, Language and Information, Trinity College, Dublin, August 2007. (With Raffaella Bernardi)
- 2007 Masterclass, UCLA, Los Angeles, June 2007.
- 2006 'Symmetric Lambek calculus'. Steklov Mathematical Institute, Moscow, 11–22 September 2006.
- 2006 'Teaching tools for deductive parsing'. European Masters in Language and Speech Summer School, Utrecht, 9–14 July 2006. (With Willemijn Vermaat)
- 2003–2006 'Categorial Grammar'. International PhD School in Formal Languages and Applications. Rovira i Virgili University, Tarragona, Spain. Annual course.
- 2003–2004 (Sept/Oct) Senior Visiting Fellow, Institute of Advanced Study. Università di Bologna.
- 2003 'Type-logical grammar and corpus-based Italian linguistics'. Centro Interfacoltà di Linguistica Teoretica e Applicata 'Luigi Heilmann' (CILTA), Università di Bologna. Sept/Oct 2003. (with Raffaella Bernardi)
- 2002 'Computational tools for logic-based grammar formalisms'. 3rd European Master School on Language and Speech. Leuven, 8–12 July 2002. (with Willemijn Vermaat)
- 2000 'The computational system: constants and variation'. Minicourse, UCLA Department of Linguistics. November 2000.
- 1999 'Grammatical resources: logic, structure and control'. Foundational course, 11th European Summer School in Logic, Language and Information. Utrecht University, 9–20 August, 1999. (With Dick Oehrle)
- 1998 'The logic of grammar'. Seminar, Università di Roma, Roma III. November 1998.
- 1997 'Categorial Grammar'. Tutorial, WoLLIC97 (4th Workshop on Logic, Language, Information and Computation). August 1997, Fortaleza, Brazil.

- 1997 ‘Grammatical resources: logic and structure’. Advanced course, 9th European Summer School on Logic, Language and Information, Aix-en-Provence, August 1997. (With Dick Oehrle)
- 1997 ‘Grammatical resources: logic, structure and control’. UCLA Department of Linguistics, Los Angeles, California, April/May 1997. Crash course (With Dick Oehrle).
- 1995 Universita di Bologna (Italy), May 1995. ‘Categorial Grammar: Logic, Linguistics, Computation’. Tutorial (with Glyn Morrill).
- 1995 ‘Automated deduction for categorial grammar logics’. Advanced course ‘Language and Computation’. 7th European Summer School on Logic, Language and Information, Barcelona, August 1995.
- 1993 ‘Logical Parameters and Linguistic Variation’. 5th European Summer School on Logic, Language and Information, Universidade de Lisboa, August 1993. (With Dick Oehrle).
- 1991 ‘Computational aspects of categorial logics’. Seminar, VII Congreso de lenguajes naturales y lenguajes formales. Vic, Barcelona, September 17–13, 1991.
- 1991 ‘Automated deduction in categorial logics’. 3rd European Summer School on Logic, Language and Information, Saarbrücken, August 1991.
- 1990 ‘Categorial Logics and Grammatical Theory’. Seminar Indiana University Logic Group, Bloomington, Indiana, December 12–14, 1990.
- 1990 2nd European Summer School on Logic, Language and Information, Leuven University, August 1990.
- 1989 ‘Categorial Grammar’, Linguistics Society of America Institute, University of Arizona, Tucson, Arizona, July 1989. (With Dick Oehrle)

1.8 THESES

Supervisor: PhD Theses

ARNO BASTENHOF *Categorial Symmetry*. Utrecht University, 12 April 2013. Co-supervisor: Vincent van Oostrom.

ANNA CHERNILOVSKAYA *Lambek-Grishin calculus*. CKI/OTS. Started September 2007. Suspended September 2008.

GIANLUCA GIORGOLO *Space and Time in Our Hands*. Utrecht University, 15 September 2010. Co-supervisors: Matthew Stone, Frans Verstraten.

MATTEO CAPELLETTI *Parsing with structure-preserving categorial grammars*. Utrecht University, 9 July 2007. Co-supervisor: Jan van Eijck.

1. CURRICULUM VITAE

WILLEMJIN VERMAAT *The logic of variation. A cross-linguistic account of wh-question formation.* Co-supervisor: Norbert Corver. Utrecht University, 13 January 2006.

CHRISTOPHE COSTA FLORENCIO *Learning Categorical Grammars.* Utrecht University. Utrecht University, 14 November 2003. Co-supervisor: Wojciech Buszkowski.

RAFFAELLA BERNARDI *Reasoning with Polarity in Categorical Type Logic.* Utrecht University, 19/6/2002.

RICHARD MOOT *Proof Nets for Linguistic Analysis.* Utrecht University, 1/2/2002.

ESTHER KRAAK *Romance Clitics: A Deductive Account* (started 1996, suspended).

DIRK HEYLEN *Types and Sorts. Resource Logic for Feature Checking.* Utrecht University, 18/6/1999.

KOEN VERSMISSEN *Grammatical Composition. Modes, Models, Modalities.* Utrecht University, 1996.

PETRA HENDRIKS *Comparatives and Categorical Grammar.* Groningen University, 1995 (co-supervisor: Frans Zwarts).

NATASHA KURTONINA *Frames and Labels. A Modal Analysis of Categorical Inference.* Utrecht University/ILLC Amsterdam, 1995. Co-supervisor: Johan van Benthem.

ERIK AARTS *Investigations in Language, Logic and Computation.* Utrecht University/ILLC Amsterdam, 1995, Co-supervisor: Theo Janssen.

ERIK-JAN VAN DER LINDEN *A Categorical, Computational Theory of Idioms.* Tilburg University, 1993. Co-supervisor: Harry Bunt.

PHILIP MILLER *Clitics and Constituents in Phrase Structure Grammar.* Utrecht University, 1991.

Supervisor: MA and BA Theses

GIJS WIJNHOLDS *Categorical Foundations for Extended Compositional Distributional Models of Meaning.* MSc in Logic, Universiteit van Amsterdam. Co-supervisor: Raquel Fernandez, 2014 (in prep).

SJOERD DOST *Typological Proof Nets in Python.* BA Thesis CKI, Utrecht University, 2013.

KASPER LUCHSINGER *Transforming Displacement Grammars Into RCG Format.* BA Thesis CKI. Utrecht University, 2012.

SILVAN VAN LEEUWEN *Natural Language Processing: Between Context-Free and Context-Sensitive.* BA Thesis CKI. Utrecht University, 2012.

- GIJS WIJNHOLDS *Investigations into Categorical Grammar: Symmetric Pre-group Grammar and Displacement Calculus*. BA Thesis CKI, Utrecht University, 2011.
- JEROEN BRANSEN *On the Complexity of the Lambek-Grishin Calculus*. MA Thesis, CAI Utrecht University, 2010.
- ARNO BASTENHOF *Continuations in natural language syntax and semantics*. MA Linguistics. Utrecht University, 2009.
- MATTHIJS MELISSEN *Lambek-Grishin Calculus extended to connectives of arbitrary arity*. MA CAI. Utrecht University, 2009.
- ANNEMIEKE REIJNGOUD *Terms of agreement*. BA CKI. Utrecht University, 2009.
- JONATHAN MEDEMA *Reliable Normalization in Resume Information Extraction*. MA Language and Speech Technology. Utrecht University, 2008.
- JEROEN BRANSEN *Statistical Methods for Categorical Grammars*. BA CKI, Utrecht University, 2008.
- ARNO BASTENHOF *Quantifier scope and coordination in flexible and continuation-based approaches to natural language semantics*. BA Linguistics, Utrecht University, 2007.
- JAC GUBBELS *Frame-based semantic role labeling*. MA Language and Speech Technology. Utrecht University, 2007.
- MARTHE DEKKER *Recognizing textual entailment*. MA Linguistics. Utrecht University. 2006.
- RON CHIN *A computational approach to Middle Welsh mutations*. CKI, Utrecht University, 2006.
- WIETEKE DIJKMAN *Non-Verbal Phrases in the Verbal Complex: Evidence from the Spoken Dutch Corpus*. Linguistics, Utrecht University, December 2003.
- MICHIEL HILDEBRAND *Communicative Virtual Agents: Learning by Interaction*. CKI, Utrecht University, August 2003.
- JELLE ZUIDEMA *Selective Advantages of Grammatical Language*. CKI, Co-supervisor: Prof P. Hogeweg, Theoretical Biology, Utrecht University, 2000.
- WILLEMIJN VERMAAT *Controlling Movement: Minimalism in a Deductive Perspective*. Co-supervisor: Prof E. Stabler (UCLA). CKI, Utrecht University, 1999.
- CHRISTOPHE COSTA FLORENCIO *Efficient Learning Algorithms for Some Classes of Categorical Grammars*. Co-supervisor: Dr D. de Jongh (Amsterdam). CKI, Utrecht University, 1998.

1. CURRICULUM VITAE

RICHARD MOOT *Proof Nets and Labelling for Categorical Grammar Logics*. CKI, Utrecht University, 1996.

DENNIS JANSSEN *Products and Slashes. Parsing Grammar Logics with Labeled Deductive Systems*. CKI, Utrecht University, 1995.

ESTHER KRAAK *French Clitics: a Categorical Analysis*. CKI, Utrecht University, 1995.

LEEN KIEVIT *Categories, Signs and Relations. Dynamic Interpretation of Categorical Grammar*. CKI, Utrecht University, 1993.

ANNE-MARIE MINEUR *Using a HPSG Lexicon for a CG Parser*. Algemene Letteren, Utrecht University, 1992.

KOEN VERSMISSEN *Discontinuous Type Constructors in Categorical Grammar*. Computer Science, Utrecht University, 1991.

External referent

FLORENT POMPIGNE *Modélisation logique de la langue et Grammaires Catégorielles Abstraites*. PhD Thesis, INRIA Nancy, 2013.

MARIO FADDA *Geometry of Grammar: Exercises in Lambek Style*. PhD Thesis, Universitat Politècnica de Catalunya, Barcelona, 2010. President of the Jury.

YANNICK LE NIR *Structure des analyses syntaxiques catégorielles: Application l'inférence grammaticale*. PhD Thesis, Rennes, 2003.

CHRISTIAN RETORÉ *Logique linéaire et syntaxe des langues*. Habilitation, Université de Nantes, 2002.

GERHARD JÄGER *Anaphora and Type Logical Grammar*. Dr. habil, Berlin, 2002.

ALAIN LECOMTE *Modèles logiques en théorie linguistique*. Habilitation, Université de Grenoble, 1994.

1.9 ORGANIZATION, PROGRAMME COMMITTEES

2014 Computational Linguistics in the Netherlands, Leiden, January 17, 2014. Programme committee.

2012 LACL 2012, 8th International Conference on Logical Aspects of Computational Linguistics, Toulouse, June 18–20, 2014. Programme committee.

2012 LACL 2012, 7th International Conference on Logical Aspects of Computational Linguistics, Nantes, July 2–4, 2012. Programme committee.

1.9. Organization, programme committees

- 2011 MOL 12, 12th Meeting on Mathematics of Language, Nara, Japan, September 6–8, 2011. Programme committee.
- 2011 WoLLIC, 18th Workshop on Logic, Language, Information and Computation, UPenn, Philadelphia, May 18–20, 2011. Programme committee.
- 2011 LACL 2011, 6th International Conference on Logical Aspects of Computational Linguistics, Montpellier, June 29 – July 1. Programme committee.
- 2010 ACL 2010, 48th Annual Meeting of the Association for Computational Linguistics, Uppsala, Sweden, July 11–16, 2010. Referee Mathematical Linguistics Track.
- 2009 11th Meeting Mathematics of Language, University of Bielefeld, August 20/21. Programme Committee.
- 2008 15th Workshop on Logic, Language, Information and Computation. Edinburgh, Scotland, July 1–4, 2008. Programme committee.
- 2007 10th Mathematics of Language Conference (MOL8). UCLA, Los Angeles, July 28–30 2007. Programme committee.
- 2005 15th Amsterdam Colloquium. December 2005. Programme Committee.
- 2005 Joint Formal Grammar/Mathematics of Language Conference. Edinburgh, August 2004. Programme Committee.
- 2005 LACL'05. 5th Conference on Logical Aspects of Computational Linguistics. April 2005, Bordeaux. Programme Committee.
- 2004 'Categorial Grammars. Efficient tools for NLP'. Montpellier, June 2004. Programme committee (Chair).
- 2003 'Questions and answers: theoretical and applied perspectives'. Joint CologNet-ElsNet Symposium. Amsterdam, 18 December 2003, jointly with 14th Amsterdam Colloquium. (Organizer, with Raffaella Bernardi)
- 2003 8th Conference on Formal Grammar (FGVienna). Vienna, 16–17 August 2003. Programme committee.
- 2003 8th Mathematics of Language Conference (MOL8). Indiana, 20–22 June 2003. Programme committee.
- 2002 'Linguistic corpora and logic-based grammar formalisms'. CologNet Workshop. OTS, 27–28 November 2002. (Organizer, with Raffaella Bernardi)
- 2002 Symposium 'Combining logical and data-oriented approaches in NLP'. Under the auspices of the Networks of Excellence CologNet and EL-SNET. Trento, 4 August 2002. (Organizer, with Raffaella Bernardi)

1. CURRICULUM VITAE

- 2002 7th Conference on Formal Grammar. Trento, 3–4 August 2002. Programme committee.
- 2002 ‘Logical Tools for Linguistics’. Workshop on the occasion of Raffaella Bernardi’s thesis defense. OTS Utrecht, 18 June 2002. (Organizer, with Willemijn Vermaat)
- 2002 ‘Proof Nets and Their Linguistic Applications’. Workshop on the occasion of Richard Moot’s thesis defense. OTS Utrecht, 31 January 2002. (Organizer, with Raffaella Bernardi)
- 2001 6th Formal Grammar Conference, 7th Mathematics of Language Conference. August 10–12, Helsinki. Programme Committee.
- 2001 8th Workshop on Logic, Language, Information and Computation (WoLIC’2001). Brasilia, July 31–August 3. Programme Committee.
- 2001 13th European Summer School in Logic, Language and Information (ESSLI 2001), Helsinki. Programme Committee: Logic and Language.
- 1999 11th European Summer School in Logic, Language and Information (ESSLI’99). Utrecht, August 9–20, 1999. Chair of the Organizing Committee.
- 1998 LACL’98. 3rd Conference on Logical Aspects of Computational Linguistics Grenoble, December 14–16, 1998. Chair of the Programme Committee.
- 1997 LACL’97. 2nd Conference on Logical Aspects of Computational Linguistics Nancy, September 22–24, 1997. Programme Committee.
- 1996 1st International Conference on Logical Aspects of Computational Linguistics (LACL’96). Nancy, April 23–25, 1996. Programme Committee.
- 1995 FoLLI Session ‘Proof Theory and Natural Language’. 10th International Congress of Logic, Methodology and Philosophy of Science. Firenze, Italy, August 19–25, 1995. (Chair)
- 1994 Universita ‘La Sapienza’, Rome. Workshop ‘Linear Logic, Proof Theory and Categorical Grammar’. Jointly organized by Esprit BRA Dyana-2 and the Group in Logic and Natural Languages of the Italian Society of Logic and Philosophy of Science (SILFS) and sponsored by the Italian CNR, October 10–12, 1994. (Organizing Committee, with Giorgio Sandri, Michele Abrusci, Claudia Casadio.)
- 1993 ‘Grammar, proof theory, and complexity’. NFI Workshop ‘Structural and semantic parallels in natural languages and programming languages’. Amsterdam, January 20–22, 1993. (Organizer with Erik Aarts, Maarten de Rijke, Mart Trautwein.)

- 1993 Sixth Conference of the European Chapter of the Association for Computational Linguistics (EACL). OTS, Utrecht University, April 1993. (Chair Programming Committee, with Steven Krauwer and Louis des Tombe.)
- 1993 ‘The structure of linguistic inference: categorial and unification-based approaches’. Symposium, 5th European Summer School in Logic, Language and Information, Lissabon, August 23–27, 1993.
- 1991 ‘Declarative perspectives on the syntax-prosody interface’, OTS Utrecht University, May 28–29, 1991. (With Hugo Quené and Bert Schouten.)
- 1989 4th Conference of the European Chapter of the Association for Computational Linguistics, April 10–12, University of Manchester. Programme Committee.

1.10 PUBLICATIONS

Articles, book chapters

- (1) ‘A note on multidimensional Dyck languages’. In Casadio e. a. (eds.) *Categories and Types in Logic, Language, and Physics*. Lecture Notes in Computer Science Volume 8222, Springer, Heidelberg, 2014, pp 279–296.
- (2) ‘Grammars, terms and types’. Chapter 6.4 in Barendregt, Dekkers and Statman, *Lambda Calculus With Types*. Perspectives in Logic. Cambridge University Press, 2013, pp 363–375.
- (3) ‘Proof nets for the Lambek-Grishin calculus’. In C. Huenen, M. Sadrzadeh and E. Grefenstette (eds.) *Quantum Physics and Linguistics. A Compositional, Diagrammatic Discourse*. Oxford University Press, 2013, pp 283–320. (with Richard Moot, revised version of (6))
- (4) ‘Proof nets and the categorial flow of information’. In A. Baltag e.a. (eds.) *Logic and Interactive RAtionality*. Yearbook 2011, pp 270–302 (2012). (with Richard Moot)
- (5) ‘Categorial Type Logics’. In J. Van Benthem & A. ter Meulen (eds.) *Handbook of Logic and Language*. Second edition, Revised and Expanded (2011), pp 95–179, Elsevier.
- (6) ‘Proof nets for the Lambek-Grishin calculus’. CoRR, arXiv:1112.6384 (2011). (with Richard Moot)
- (7) ‘Continuation semantics for the Lambek-Grishin calculus’. *Information and Computation*, Volume 208, Issue 5, May 2010, pp 397–416 (with Raffaella Bernardi)

1. CURRICULUM VITAE

- (8) 'Relational semantics for the Lambek-Grishin calculus'. In Christian Ebert, Gerhard Jäger and Jens Michaelis (eds.) *The Mathematics of Language. 10th and 11th Biennial Conference, Revised Selected Papers*. LNCS 6149, Springer, 2010, pp 210-222. (with Natasha Kurtonina)
- (9) 'Symmetric Categorical Grammar: Residuation and Galois Connections'. *Linguistic Analysis*, volume 36, 1-4 (2010), pp 143-166.
- (10) 'Joachim Lambek: The Beauty of Mathematics in Language'. Editorial. *Linguistic Analysis*, volume 36, 1-4 (2010), pp 5-14. (with Johan van Benthem)
- (11) Typological Grammar. *The Stanford Encyclopedia of Philosophy* (Winter 2010 Edition), Edward N. Zalta (ed.), (url: <http://plato.stanford.edu/archives/win2010/entries/typological-grammar/>).
- (12) 'Symmetric categorial grammar'. *Journal of Philosophical Logic* (2009), Special issue on the occasion of Johan van Benthem's 60th birthday. Guest Edited by Hans van Ditmarsch and Lawrence S. Moss. **38**(6):681–710.
- (13) 'Relational semantics for the Lambek-Grishin calculus'. In M. Kracht, G. Penn, and E. Stabler (eds.) *Proceedings of the 10th Mathematics of Language Conference, July 28-30, 2007, UCLA, Los Angeles*. (With Natasha Kurtonina)
- (14) 'Type similarity for the Lambek-Grishin calculus'. In Kallmeyer et al (eds.) *Proceedings Formal Grammar. Dublin, 2007*. CSLI Publications, Stanford. (With Mati Pentus)
- (15) 'Continuation semantics for symmetric categorial grammar'. In Daniel Leivant and Ruy de Queiros (eds.) *Proceedings 14th Workshop on Logic, Language, Information and Computation (WoLLIC'07)*. Springer LNCS 4576, 2007, pp 53–71. (With Raffaella Bernardi)
- (16) 'Symmetries in natural language syntax and semantics: the Lambek-Grishin calculus'. In Daniel Leivant and Ruy de Queiros (eds.) *Proceedings 14th Workshop on Logic, Language, Information and Computation (WoLLIC'07)*. Springer LNCS 4576, 2007, pp 264–284.
- (17) 'Pregroups and type-logical grammars: searching for convergence'. In P. J. Scott, C. Casadio, R. A. G. Seely (eds.) *Language and Grammar Studies in Mathematical Linguistics and Natural Language*. CSLI Publications, Stanford, 2005, pp 141–160. (With R. T. Oehrle)

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- (18) ‘Categorial Type Logic meets Dependency Grammar to annotate an Italian corpus’. In G.J. Kruijff and D. Duchier (eds.) *Recent Advances in Dependency Grammars*. COLING04, Geneva, pp. 57–64. (With R. Bernardi, A. Bolognesi and F. Tamburini)
- (19) ‘Dependency structures’. In M. Moortgat and V. Prince (eds.) *Proceedings Categorial Grammars: An Efficient Tool for Natural Language Processing*, Montpellier, pp. 92–95.
- (20) ‘Dynamic teaching materials for ESSLLI’. In P. Monachesi, C. Vertan, W. von Hahn, and S. Jekat (eds.) *Language Resources: Integration and Development in e-Learning and in Teaching Computational Linguistics*. LREC 2004, Lisbon. (With R. Bernardi, I. Dahn, G. Mishne, M. de Rijke and H. Uszkoreit)
- (21) ‘Categorial grammar and formal semantics’. In L. Nagel (ed.) *Encyclopedia of Cognitive Science*, Vol. 1, pp. 435–447. London, Nature Publishing Group, 2002.
- (22) ‘Quelques thérapies en logique des types pour le problème de Sapir’. In B. Godart-Wendling (ed.) *Les grammaires catégorielles*. *Langages*, Vol. 148, pp. 111–124. Larousse, Paris, 2002.
- (23) ‘Syntactische annotatie voor het Corpus Gesproken Nederlands (CGN)’. *Nederlandse Taalkunde* 7(4):335–352, 2002. (With T. van der Wouden, H. Hoekstra, B. Renmans, and I. Schuurman)
- (24) ‘Teaching tools for logic-based grammar development’. *Eutupon* 9:1–14. Xanthi, Thrace, 2002. (With R. Moot and R.T. Oehrle)
- (25) ‘The Lambek Calculus in Logic and Linguistics. Editorial Introduction’. Special issue *Studia Logica* 71(3):261–276, Kluwer, 2002 (With Wojciech Buszkowski)
- (26) ‘Using the Spoken Dutch Corpus for type-logical grammar induction’. *Proceedings LREC 2002*, pp. 419–425 (with Richard Moot)
- (27) ‘Syntactic analysis in the Spoken Dutch Corpus’. *Proceedings LREC 2002*, pp. 768–773 (with T. van der Wouden, H. Hoekstra, B. Renmans, I. Schuurman)
- (28) ‘Experiences from the Spoken Dutch Project’. *Proceedings LREC 2002*, pp. 340–347 (with N. Oostdijk, W. Goedertier, F. Van Eynde, L. Boves, J.P. Martens, H. Baayen)
- (29) ‘T_EX in teaching’. In S. Pepping (ed.) *T_EX and META. The Good, the Bad and the Ugly*. Proceedings of the 12th European T_EX Conference. Kerkrade, pp. 130–140, 2001. (With R. Moot and R. Oehrle)

1. CURRICULUM VITAE

- (30) ‘Structural equations in language learning’. In P. de Groote, G. Morrill, C. Retoré (Eds.), *Proceedings LACL 2001*, Springer LNAI 2099, pp. 1-16, 2001.
- (31) ‘Galois connections in categorial type logic’. *Electronic Notes in Theoretical Computer Science* 47:1–12, Elsevier Science Publishers, 2001. (With C. Areces and R. Bernardi)
- (32) ‘Syntactic Annotation for the Spoken Dutch Corpus Project (CGN)’. In W. Daelemans (ed.) *Proceedings CLIN2000*, 2001. (With H. Hoekstra, I. Schuurman, T. van der Wouden)
- (33) ‘CGN to Grail. Extracting a type-logical lexicon from the CGN Annotation’. In W. Daelemans (ed.) *Proceedings CLIN2000*, 2001. (With R. Moot)
- (34) ‘Grammatical constants and structural variation’. In H. Bennis *et al* (eds.), *Interface Strategies*, KNAW Verhandelingen, Afd. Letterkunde, Nieuwe Reeks, deel 180, pp. 257–276. Amsterdam, 2000.
- (35) ‘Meaningful patterns’. In J. Gerbrandy *et al* (eds.) *JFAK. Essays dedicated to Johan van Benthem on the occasion of his 50th birthday*, AUP, Amsterdam, 1999.
- (36) ‘Constants of grammatical reasoning’. In Bouma *et al* (eds.) *Constraints and Resources in Natural Language Syntax and Semantics*, pp. 195–219. CSLI, Stanford, 1999.
- (37) ‘Proof nets for the grammatical base logic’. In V.M. Abrusci and C. Casadio (eds.), *Dynamic perspectives in logic and linguistics*, Proceedings 4th Roma Workshop, pp. 131–143. Bulzoni, Roma, 1999. (With R.T. Oehrlé)
- (38) ‘Labeled Deduction in the Composition of Form and Meaning’. In U. Reyle and H.J. Ohlbach (eds.) *Logic, Language and Reasoning. Essays in Honor of Dov Gabbay*, pp. 377–399. Kluwer, Dordrecht, 1999.
- (39) ‘Categorial Type Logics’. Chapter 2 in J. van Benthem and A. ter Meulen (eds.) *Handbook of Logic and Language*. Elsevier, Amsterdam and MIT Press, Cambridge MA, 1997, 93-177.
- (40) ‘Structural Control’. In P. Blackburn and M. de Rijke (eds.) *Specifying Syntactic Structures*. CSLI, Stanford, 1997, 75–113. (With Natasha Kurtonina.)
- (41) ‘Structural abstractions’. In M. Abrusci and C. Casadio (eds.) *Proofs and Linguistic Categories*. Proceedings 3rd Roma Workshop. Editrice CLUEB, Bologna, 1996. (With Dick Oehrlé.)

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- (42) ‘Generalized quantifiers and discontinuous type constructors’. In Harry Bunt and Arthur van Horck (eds.) *Discontinuous Constituency*. Mouton de Gruyter, Berlin, 1996, pp 181–207.
- (43) ‘In situ binding: a modal analysis’. In Dekker and Stokhof (eds.) *Proceedings Tenth Amsterdam Colloquium*. ILLC, Amsterdam (1996), 539–549.
- (44) ‘Multimodal linguistic inference’. *Journal of Logic, Language and Information*, 5(3,4)(1996), 349–385. Special issue on proof theory and natural language. Guest editors: D. Gabbay and R. Kempson. (Revised version of (45).)
- (45) ‘Multimodal linguistic inference’. *Bulletin of the IGPL*. Vol 3 (2,3) (1995), 371–401. Special Issue Deduction and Language (editor Ruth Kempson).
- (46) ‘Adjacency, dependency and order’. In P. Dekker and M. Stokhof (eds.) *Proceedings Ninth Amsterdam Colloquium*. ILLC, Amsterdam (1994), 447–466. (With R.T. Oehrle.)
- (47) ‘Labelled deductive systems for categorial theorem proving’. In Dekker, P. & M. Stokhof (eds.) *Proceedings of the Eighth Amsterdam Colloquium*. ILLC, Amsterdam (1992), 403–424.
- (48) ‘Generalized Categorial Grammar: the Lambek Calculus’. In F.G. Droste en J.E. Joseph (eds.) *Linguistic Theory and Grammatical Description*. Benjamins, Amsterdam (1991), 137–178.
- (49) ‘Unambiguous proof representations for the Lambek Calculus’. In Stokhof & Torenvliet (eds.) *Proceedings 7th Amsterdam Colloquium*, ITLI Amsterdam (1990), 379–400.
- (50) ‘Categorial logics: a computational perspective’. In van de Goor (ed.) *Proceedings Computing Science in the Netherlands 1990*. Mathematisch Centrum, Amsterdam (1990), 329–347.
- (51) ‘La grammaire catégorielle généralisée’. In Miller & Torris (eds.) *Formalismes syntaxiques pour le traitement automatique du langage naturel*. Paris, Hermes (1990).
- (52) ‘Mixed composition and discontinuous dependencies’, in Oehrle, Bach & Wheeler (eds.) *Categorial Grammars and Natural Language Structures*. Reidel, Dordrecht (1988), 319–348.
- (53) ‘Lambek categorial grammar and the autonomy thesis’. In M. Everaert e.a. (eds.) *Morphology and Modularity*. Foris, Dordrecht, pp. 233–258, 1988.

1. CURRICULUM VITAE

- (54) 'De rekenkunde der rededelen'. *GLOT* 10(3):459–483. 1987.
- (55) 'Compositionality and the syntax of words'. In Groenendijk, De Jongh & Stokhof (eds.) *Foundations of Pragmatics and Lexical Semantics*, Foris, Dordrecht (1987), 41–62.
- (56) 'A Fregean restriction on metarules'. In Jones & Sells (eds.) *Proceedings NELS14* (1981), 306–325.

Books (author)

- (57) *Categorial Investigations. Logical and Linguistic Aspects of the Lambek Calculus*. Foris, Dordrecht, 1988. (Second impression: De Gruyter, Berlin.)

Books, proceedings, journal issues (editor)

- (58) *Categories and Types in Logic, Language, and Physics. Essays dedicated to Jim Lambek on the occasion of his 90th birthday*. Claudia Casadio, Bob Coecke, Michael Moortgat and Philip Scott (eds.) *Lecture Notes in Computer Science*. Volume 8222, Springer, Heidelberg.
- (59) Festschrift for Joachim Lambek. Johan van Benthem and Michael Moortgat (eds.) *Linguistic Analysis*, Volume 36(1-4), 2010.
- (60) *Symmetric Categorial Grammar*. Lecture Notes European Summer School in Logic, Language and Information. Dublin, 2007. (With Raffaella Bernardi)
- (61) *Categorial Grammars: An Efficient Tool for Natural Language Processing*, Workshop Proceedings, LIRMM, Montpellier, 2004. (With Violaine Prince)
- (62) *The Lambek calculus in logic and linguistics*. Special issue *Studia Logica*, Volume 71, No. 3, 2002. (With Wojciech Buszkowski.)
- (63) *Logical Aspects of Computational Linguistics*. Third International Conference, Grenoble 1998. Selected Papers. *Lecture Notes in Artificial Intelligence*, Volume 2014. Springer, Heidelberg, 2001.
- (64) *Proceedings Sixth Conference of the European Chapter of the Association for Computational Linguistics*. ACL, Morristown, NJ, 1993. (With Steven Krauwer and Louis des Tombe)
- (65) *Flexibele categoriale grammatica's*. *GLOT*, Tijdschrift voor Taalwetenschap. Jaargang 10, Nummer 3, 1987.
- (66) *The Scope of Lexical Rules*. Foris, Dordrecht, 1981. (With Teun Hoekstra and Harry van der Hulst.)
- (67) *Lexical Grammar*. Foris, Dordrecht, 1980. (With Teun Hoekstra and Harry van der Hulst.)

Inaugural speech

- (68) ‘Taal- en rekenkunde’. Rede uitgesproken bij aanvaarding van het ambt van gewoon hoogleraar in de taalinformatica. In Van Eijck J. & M. Moortgat (1990) *Taal en Logica. Computationale syntaxis en semantiek*, iii–xxvii.

1.11 SELECTED TALKS

- 22/9/2014 ‘On combining grammar logics’. Syntax and semantics meeting, OSU Department of Linguistics, Columbus, OH.
- 18/6/2014 ‘Continuations and derivational ambiguity’. 8th International Conference Logical Aspects of Computational Linguistics. IRIT, Toulouse. Invited talk.
- 21/9/2013 ‘Multidimensional Dyck languages’. From categories to logic, linguistics and physics: a tribute for the 90th birthday of Joachim Lambek. Centre de Recherches Mathématiques, Montreal.
- 22/5/2013 ‘Proofs as pictures’. UCLA Semantics Tea. UCLA Department of Linguistics, Los Angeles.
- 21/12/2012 ‘Proof Nets and their Composition Graphs’. Fourth Barcelona Workshop on Types, Logic and Grammar. UPC, Barcelona.
- 8/12/2011 ‘Compositional mappings’. Workshop ‘ACG@10. Ten years of Abstract Categorical Grammars’. LaBRI. Bordeaux.
- 8/7/2011 ‘Compositional interpretations’. Conference ‘Joachim Lambek. Mathematics, Logic and Language’. Chieti.
- 17/6/2011 ‘Grammars, terms and types’. *20 Ans de Recherche en Informatique*. Laboratoire Bordelais de Recherche en Informatique, Bordeaux. Invited talk.
- 24/1/2011 ‘Syntax and Semantics in Generalized Lambek Calculus’. Substructural logics, information and interaction. Logic and Rational Interaction Seminar, ILLC, Amsterdam.
- 13/11/2010 ‘Continuation semantics for generalized Lambek calculi’. Workshop Logic, Categories, Semantics. Bordeaux.
- 29/10/2010 ‘Beyond the context-free boundary: generalizing Lambek calculus’. Flowin’cat 2010 Workshop The Categorical Flow of Information in Physics and Linguistics. Oxford.
- 28/7/2010 ‘Galois connections and scope’. Third Barcelona Workshop on Types, Logic and Grammar. UPC Barcelona.

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- 22/4/2010 'Tertium non datur in the Lambek-Grishin calculus'. Third World Congress on Universal Logic. Monte Estoril, Portugal.
- 3/11/2009 'Natural language as a programming language'. Computer Science, Free University of Bolzano.
- 27/4/2009 'Parsing-as-deduction for symmetric categorial grammar'. ICIS, Nijmegen.
- 28/10/2008 'Proofs-as-programs for symmetric categorial grammar'. Brouwer Seminar. Nijmegen.
- 4/9/2008 'Symmetric categorial grammar'. Invited talk. British Logic Colloquium, University of Nottingham.
- 10/7/2008 'The Syntactic Calculus with Grishin's distributivities'. Symposium 'The Syntactic Calculus after 50 Years'. Università "G. D'Annunzio". Chieti.
- 5/5/2008 'CPS interpretation for the Lambek-Grishin calculus'. Workshop 'Logical Models of Reasoning and Computation'. Moscow.
- 28/11/2007 'Structure-preservation in the Lambek-Grishin calculus'. General Mathematics Colloquium. Nijmegen.
- 3/11/2007 'Symmetry and structure preservation'. Colloque en l'honneur d'Alain Lecomte. Pauillac.
- 19/9/2007 'Lexical and derivational semantics for Lambek-Grishin calculus'. 4th Workshop Lambda Calculus and Formal Grammar. Nancy.
- 4/8/2007 'Type similarity in the Lambek-Grishin calculus'. 12th Conference on Formal Grammar. Trinity College, Dublin. (With Mati Pentus)
- 3/7/2007 'Symmetries in natural language syntax and semantics' Invited talk. WoLLIC, 14th Workshop on Logic, Language, Information and Computation, Rio de Janeiro.
- 13/6/2007 'Sur le calcul de Lambek et les continuations'. Rencontre "Pragmatique, Ludique et Continuations". ANR-Prélude. Carry-le-Rouet.
- 17/4/2007 'Continuation semantics for Lambek-Grishin calculus'. Seminar Formal Semantics and Current Issues in Semantics. MGU, Moscow.
- 20/9/2006 'Extended Lambek calculus'. Mathematical logic seminar, Steklov Mathematical Institute, Moscow.
- 16/9/2006 'The logic of variation: grammatical constants and language diversity'. Linguistics Department, Moscow University. Part I: 16/9/2006, Part II: 23/9/2006.

- 13/2/2006 'Lambek calculus with Grishin interactions'. Workshop Linguistics and Logic, GEOCAL'06. Marseille.
- 17/8/2005 'Grammatical invariants'. Workshop Foundations of Natural Language Grammar. ESSLLI'05, Edinburgh.
- 10/6/2005 'Grammatical invariants'. Proof Theory at the Syntax Semantics Interface. Workshop LSA 2005 Linguistic Institute. Boston.
- 7/5/2005 'Grammatical invariants'. Workshop on Pregroups and Linear Logic. Chieti.
- 25/2/2005 'Grammatical invariants: enriching the Lambek vocabulary'. Workshop on Modal Logic, Model Theory and (Co)Algebras. ILLC, Amsterdam.
- 29/09/2004 'Arrow reversal in grammar'. Istituto di Studi Avanzati, Bologna.
- 24/5/2004 'Dynamic teaching materials for ESSLLI'. Language Resources: Integration and Development in e-learning and in teaching Computational Linguistics. 4th International Conference on Language Resources and Evaluation Lisbon, Portugal. (With Bernardi, de Rijke, and others)
- 1/10/2003 'The Logic of Grammar: Mathematical Invariants and Structural Diversity In Natural Language'. Institute of Advanced Study. Bologna.
- 18/6/2003 'Pregroup approximations of type-logical grammars'. Fields Institute Summer School, Logic and Foundations of Computation. University of Ottawa. (With Dick Oehrle)
- 10/4/2003 'NLP: the logical approach'. Faculty of Computer Science, Free University of Bolzano.
- 8/4/2003 'Type-logical grammars: questions and answers'. Philosophy Dept, Università di Bologna.
- 7/4/2003 'Type-logical grammars: expressivity versus tractability'. CILTA, Università di Bologna.
- 20/2/2003 'Pregroup approximations of type-logical grammars'. Laboratoire Bordelais de Recherche en Informatique (LABRI), Bordeaux.
- 28/11/2002 'Computational tools for logic-based grammar formalisms'. 13th Meeting of Computational Linguistics in the Netherlands (CLIN 2002). (With Willemijn Vermaat)
- 3/8/2002 'Teaching tools for logic-based grammar formalisms'. Special Session *Formal grammar and the curriculum*, 7th Formal Grammar Conference, Trento, August 2002. (With Willemijn Vermaat)

1. CURRICULUM VITAE

- 28/6/2002 'Grammatical constants and structural variation'. Computing with LLI Seminar, Language and Inference Technology, University of Amsterdam.
- 4/7/2001 'Your VR or mine? Non-determinism in the solution of structural equations'. Mini-conference on the occasion of Arnold Evers' retirement. OTS Utrecht University.
- 28/6/2001 'Structural equations in language learning'. Invited lecture, 4th International Conference *Logical Aspects of Computational Linguistics*. Le Croisic, 27–29 June, 2001.
- 5/5/2001 'Solving structural equations'. 5th Roma Workshop, Dipartimento di Filosofia Università Roma 3.
- 8/5/2000 Formal Linguistics and Logic. Symposium 'Lambek a Bologna', Centro Interdipartimentale di Ricerca in Epistemologia e Storia delle Scienze Federigo Enriques, Bologna.
- 25/8/99 'Grammatical reasoning: logical constants and structural variation'. Invited lecture, 11th International Congress of Logic, Methodology and Philosophy of Science, Section Logic, Language, and Cognition. Cracow, Poland 1999, August 20–26.
- 15/2/99 'Multimodal Type Logical Grammars'. Invited talk. Triennial Conference 'Logic, Mathematics and Linguistics' of the SILFS (Italian Society of Logic and Philosophy of Science). Cesena/Urbino, 15-20 February, 1999.
- 16/8/98 Invited lecture 'Unbounded Dependencies: Empirical Problems and Formal Techniques'. Joint Conference on Formal Grammar, Head-Driven Phrase Structure Grammar, and Categorical Grammar. August 14–16, Saarbrücken.
- 14/3/98 'The proof-theoretic basis of extraction asymmetries'. UCLA, Department of Linguistics.
- 30/1/98 'Betekenisvolle patronen'. Lezing 'Wiskunde en Taal' voor de Nationale Wiskunde Dagen (organisatie: Freudenthal Instituut). Noordwijkerhout.
- 15/10/97 'Logic and language: constants of grammatical reasoning'. Invited talk. *Settimana di logica a Roma Tre*. Roma, Facoltà di Lettere e Filosofia.
- 16/10/97 'Proof nets for structured resources'. 4th Roma Workshop 'Proof-theoretical dimensions of communication processes'. Roma III. (With Dick Oehrle.)
- 25/9/97 'Grammar = Logic + Structure + Control'. KNAW Colloquium 'Interface Strategies', Amsterdam.

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- 22/9/97 'The logic of grammar'. Invited talk. LACL97 'Logical Aspects of Computational Linguistics'. Nancy.
- 20/8/97 'Grammatical resources: logic, structure, and control'. Invited talk. WoLLIC97 (4th Workshop on Logic, Language, Information, and Computation). Fortaleza, Brazil.
- 10/4/96 'Structural abstractions'. Third Roma Workshop 'Proofs and Linguistic Categories'. Università La Sapienza, Rome. (With Dick Oehrle.)
- 20/12/95 'In situ binding: a modal analysis'. 10th Amsterdam Colloquium, Amsterdam.
- 7/12/95 'Categorical Grammar Logics'. *AMiLP95* Workshop Algebraic Methods in Language Processing. Twente University.
- 28-30/9/95 'Overview: categorial grammar architecture', 'Overview: compiling and parsing type-logical grammar'. Final Review Esprit BRA 6852 DYANA-2, Amsterdam.
- 5-9/4/95 'Tensions at the syntax-semantics interface', 'Options for combining logics'. Workshop Esprit BRA 6852 DYANA-2, Tübingen, 5-9 april 1995.
- 3/12/94 'Logics of structured resources'. *ATALA* Workshop Proof Theory and Natural Language, Paris.
- 25/10/94 'Grammar Architecture'. Second Annual Review, Esprit BRA 6852 Dyana-2, Edinburgh.
- 23/10/94 'Logics of structured resources: theory and applications'. Fourth Dyana-2 Workshop, Edinburgh.
- 11/10/94 'Controlling resource management' (with Natasha Kurtonina). Second Workshop 'Linear Logic, Proof Theory and Categorical Grammar'. Rome.
- 10/10/94 'Sublinear Communication'. Second Workshop 'Linear Logic, Proof Theory and Categorical Grammar'. Rome.
- 26/9/94 'Residuation in mixed Lambek systems'. Third NFI Workshop 'Logic, structure and syntax'. CWI, Amsterdam.
- 20/5/94 'Combining logics for categorial analysis'. Conference Lambek Calculus. Rome.
- 3/3/94 'Grammar and inference in categorial type logics'. Workshop Proof Theory and Natural Language. SOAS, London.
- 14/12/93 'Order, dependency, connectedness: parameters of multimodal grammatical inference' (with R.T. Oehrle). Ninth Amsterdam Colloquium, ILLC, Amsterdam.

1. CURRICULUM VITAE

- 10/12/93 'Categorial Grammar'. Workshop 'Integrating Logic and Linguistics', *Handbook of Logic and Linguistics*, Elsevier Science Publishers, Amsterdam.
- 23/9/93 'Grammar architecture: an overview'. First Annual Review Esprit BRA 6852 DYANA, Freudenstadt.
- 21/9/93 'Logics of structured resources'. Second Workshop Esprit BRA 6852 DYANA, Freudenstadt.
- 23/8/93 'Unifying types and features'. Symposium 'The structure of linguistic inference: categorial and unification-based approaches'. 5th European Summer School in Logic, Language and Information, Lissabon.
- 28/6/93 'Dependency and discontinuity'. Workshop on Linear Logic and Lambek Calculus. Rome.
- 18/6/93 'Linear logic and linguistics'. Principal speaker, Linear Logic Conference, Mathematical Sciences Institute, Cornell University, Ithaca, NY.
- 5/6/93 'The structure of linguistic resources'. Second Workshop on Logic, Language and Information, CSLI, Stanford.
- 23/3/93 'Categorial grammar and type theory'. First DYANA-2 Workshop, Amsterdam.
- 21/1/93 'Fine-structuring linguistic resources' (with Glyn Morrill). NFI Workshop 'Grammar, proof theory, and complexity', Amsterdam.
- 11/11/92 'Logica en taalkunde' (Logic and Linguistics), Opening Onderzoeksschool Logica, Amsterdam.
- 4/6/92 'TAGs, types and labelled deduction'. TAG+ Workshop, Institute for Research in Cognitive Science. University of Pennsylvania.
- 17/20/91 'Labelled Deductive Systems for categorial theorem proving'. Eighth Amsterdam Colloquium. ILLC, Amsterdam.
- 17/9/91 'Categorial grammar: recent developments'. VII Congreso de lenguajes naturales y lenguajes formales. Vic.
- 13/9/91 'Automated deduction in categorial logics'. Final Review Esprit BRA DYANA. Amsterdam.
- 19/8/91 'Logics of accessible resources'. Keynote address, ASL/LSA Conference on Logic and Linguistics. University of California at Santa Cruz.
- 5/8/91 'Generalized quantification and binding'. Seminar für natürlich-sprachliche Systeme, Tübingen.
- 28/5/91 'A type calculus for metrical trees' (with Glyn Morrill). OTS Workshop 'Declarative perspectives on the syntax-prosody interface'. Utrecht.

- 20/4/91 'Logica en taalkunde' (Logic and Linguistics). Symposium 'De toekomst van de logica' (The future of logic), Nederlandse Vereniging voor Logica. Utrecht.
- 7/2/91 'Parsing categorial grammar'. Annual Review Esprit BRA DYANA, Edinburgh.
- 12/12/90 'Categorial logics and grammatical theory'. Indiana University Logic Group. Bloomington.
- 2/11/90 'Categorial logics: a computational perspective'. Key-note address, Computing Science in the Netherlands 1990. Utrecht.
- 13/8/90 'Categorial logics and computational semantics'. Finse Workshop on Computational Semantics. Finse (Norway).
- 6/8/90 'Discontinuity and quantification'. Second European Summer School in Language, Logic and Information, Leuven.
- 26/5/90 'Proof nets, partial deduction and resolution'. Workshop Word Order in Categorial Grammar. Clermont-Ferrand.
- 25/1/90 'The logic of discontinuous type constructors'. Tilburg Symposium on Discontinuous Constituency. ITK, Tilburg.
- 9/1987 'Categorial Grammar'. Henry Sweet Lecture. Linguistics Association of Great Britain. Bradford.

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Research statement

My research interests are situated at the interface between logic, linguistics and computer science. My long term objective is to model the cognitive abilities underlying knowledge and use of language as a ‘logic of grammar’ — a specialized deductive system, attuned to the task of reasoning about the composition of grammatical form and meaning. To achieve this goal, the following central questions have to be addressed:

- ▷ What are the CONSTANTS of the computational system of language, and what are the logical principles governing their use?
- ▷ How can we reconcile the idea of ‘grammatical constants’ with the differences between languages, that is, with STRUCTURAL VARIATION in the realization of the form/meaning correspondence?

My approach to these issues combines key themes of two research traditions: the generative tradition, with its emphasis on the place of linguistics within the cognitive sciences, and the logical tradition of Lambek and Montague, where the emphasis is on modelling linguistic abilities in a mathematically precise way.

Foundations In the Nineties, I have been working on the logical foundations of a grammatical architecture known as multimodal categorial grammar. The inspiration for this framework comes from Jim Lambek’s early categorial work, and from Jean-Yves Girard’s Linear Logic — logics which account for the bounded computational resources of the human language processing system in a very natural way.

Invariants and controlled variation. Multimodal categorial grammar identifies a vocabulary of grammatical *constants*, capturing *invariant* aspects in the composition of form and meaning. Cross-linguistic *variation* is obtained by combining the invariant grammatical core system with a set of *structural postulates*. These postulates characterize the structural deformations under which

2. RESEARCH STATEMENT

the basic form-meaning correspondence is preserved. My main contribution has been the introduction of structural control operators. These operators play a role comparable to the functional projections of generative grammar: they do not correspond to material parts of an utterance, but they provide the tools for controlling grammatical composition in a lexically-anchored way.

Fundamental results are in (44) (cut-elimination, decidability), and (40) (theory of structural control). The thesis work of Natasha KURTONINA and Richard MOOT provides Kripke-style structural semantics, and algorithmic proof theory (proof nets, parsing) for the framework. My contribution to the Handbook of Logic and Language (39) is the key reference for this line of work.

Symmetry. For an optimal division of labour between the invariant base logic and the structural module, it is important to squeeze as much explanatory power as possible out of the structurally-free core system. My current research efforts are concentrated on introducing symmetry in the grammar logic, in the sense that grammatical hypotheses and conclusions are treated on a par. Next to the familiar fusion/composition operation and its residual slashes, one now considers a dual family of *fission* and subtraction operations; interaction between these dual perspectives on linguistic structure is regulated in terms of weak distributivity principles originally studied by V.N. Grishin. The symmetric setup makes it possible to recognize as grammatical invariants certain principles of linguistic organization that before were thought to require the introduction of non-logical axioms. Semantically, it naturally accommodates a continuation-based interpretation, and with it a more optimal division of labour between syntax and semantics. For results so far, see (12), and my joint work with Raffaella BERNARDI (continuation semantics (15), (7)), Natasha KURTONINA (relational models (8)), Richard MOOT (proof nets (3)), and the thesis work of Arno BASTENHOF.

The logic of variation On the empirical level, the challenge is to come up with a ‘logic of variation’ that does justice to the insights that have been obtained within the generative tradition. My work on extraction asymmetries, binding, head adjunction and cliticization ((36), (42), (35), Cilta Course) contributes to this theme, together with the thesis projects of Raffaella BERNARDI (scope control, polarity sensitivity) and Willemijn VERMAAT (cross-linguistic aspects of extraction patterns). The ultimate objective of these projects is to identify the atoms of variation, so that one could characterize the individuality of a language in terms of its ‘structural fingerprint’.

Applications On a more practical level, I am interested in the combination of the logical perspective on grammatical organization and corpus-based methods in NLP (cf. (26), (33)). The Spoken Dutch Corpus, for which my group at OTS has provided ‘deep’ dependency annotation, is a challenge for such a combined logical/data-oriented approach (cf. (27), (28), (32)).

Dissemination With Dick Oehrle, I have been working on the didactic dissemination of the ideas underlying the type-logical approach, and on the development of interactive teaching tools for use in e-learning environments. Our efforts have been centered on the development dynamic pdf documents, allowing client-server interaction with Richard MOOT's general categorial theorem prover (cf. (24), (29)).