



Lotze Prize 2010

The Proper Treatment of Events



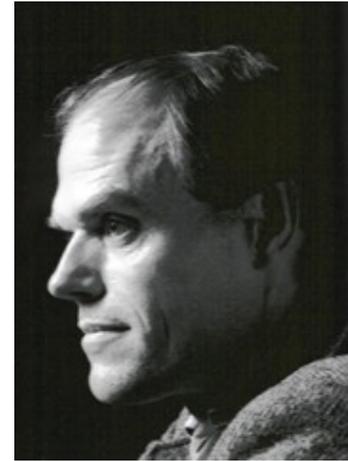
Lotze Prize 2010

Michiel van Lambalgen & Fritz Hamm:

The Proper Treatment of Events

Fritz Hamm & Michiel van Lambalgen

- Their research distinguishes itself by originality and a high level of mathematical sophistication which is always justified by improvements in empirical adequacy.





Work on tense and aspect semantics.

- Highly original
- Brings together
 - Cognitive science
 - Linguistics
 - Computational science
 - Philosophy of Language



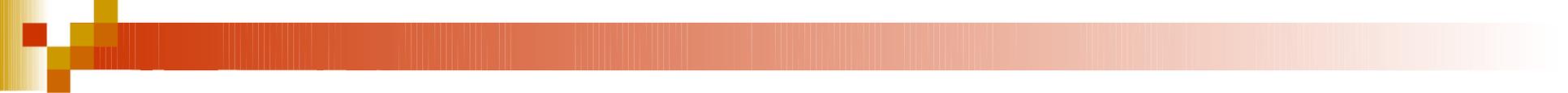
Resulted in Book

The Proper Treatment of Events

(Explorations in Semantics Series),

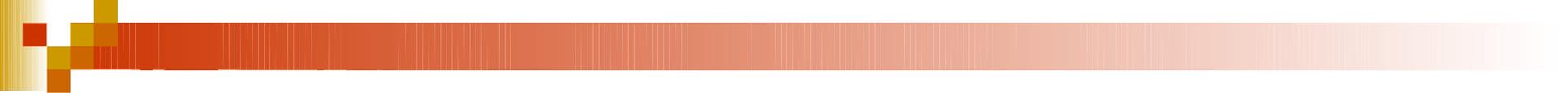
Blackwell Publishing, Malden MA

2005



The Proper Treatment of Events

- Develops an approach to the semantics of tense and aspect.
- Based on the idea that tense and aspect codify different features of planning toward a goal.
- Led to a formal semantics based on a combination of the event calculus from cognitive robotics, constraint logic programming and Feferman's type-free truth theory.



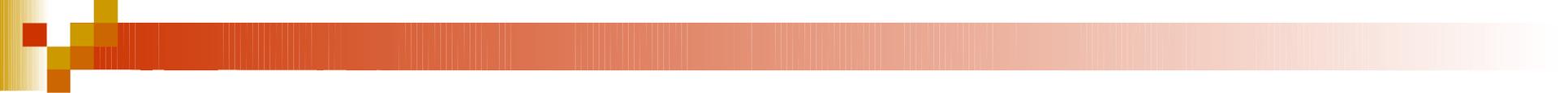
The Proper Treatment of Events

- Linguistic topics treated:
 - Aktionsart,
 - Tense in English and French,
 - Grammatical aspect (perfect, progressive),
 - Nominalisation (Gerunds).
- The book starts off with a synopsis of what is known about the cognitive representation of time.
- Argues that planning is of paramount importance here.



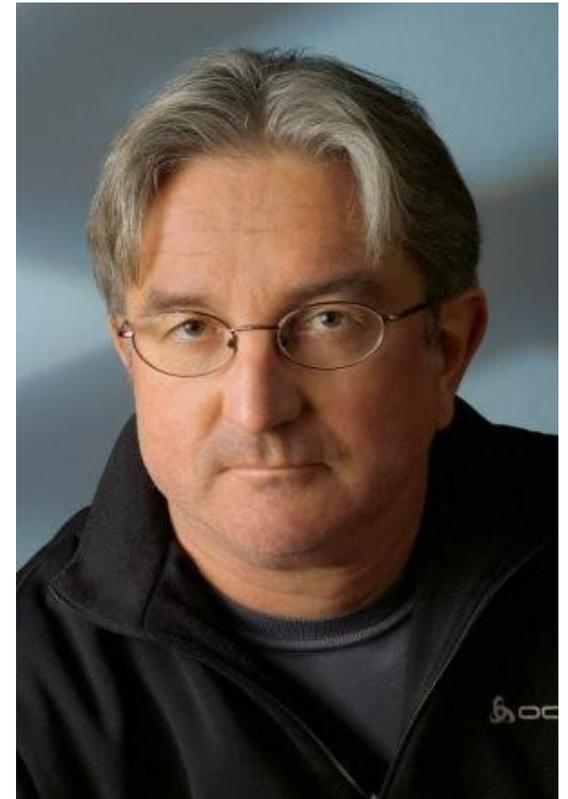
Event Calculus

- Developed for time dependent planning tasks of artificial agents in real world environments.
- Agents need a domain model, keep track of effects of actions and of state of the environment.
- The task is to find an executable plan.
- Therefore, the event calculus provides a fully formalised framework for interpreting action sentences, state descriptions, and Aktionsarten.

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- As the event calculus is a planning theory, this work has a distinctly cognitive component
 - also distinguishing it from previous work on event semantics.
 - In previous approaches the models of actions, states and events only consisted of some lattices with minimal internal structure.
 - Hamm and Lambalgen show in detail how their framework is motivated by findings about the psychology of time and events.

Fritz Hamm

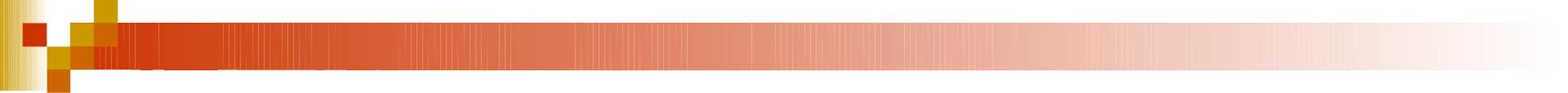
- Professor at University of Tübingen
- Born 1953 in Landshut (Bavaria)
- Study of Linguistics and Mathematics
until 1984
 - Tübingen University
 - Bedford College London (Hans Kamp)
 - Merton College Oxford (Dana Scott)





Fritz Hamm

- 1989 Promotion (summa cum laude) German Linguistics at the University of Frankfurt.
- 1999 Habilitation in General and Theoretical Linguistics at the University of Tübingen.
- 2006 Apl. Professor at University of Tübingen.



Research

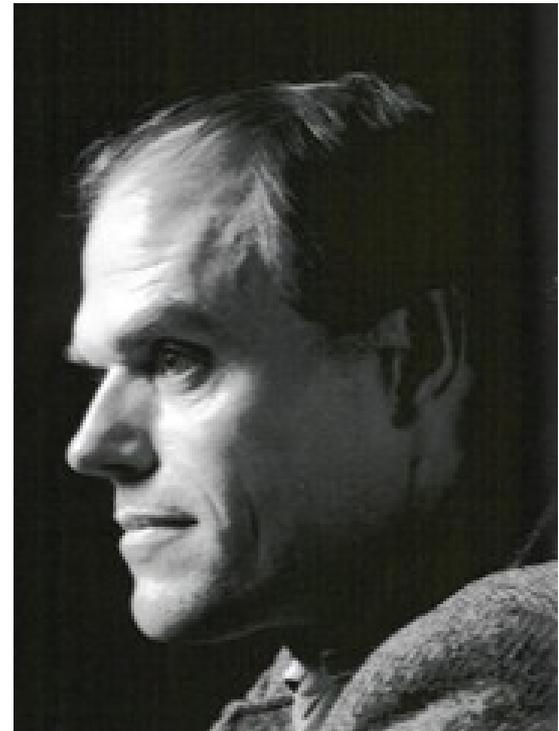
- Fritz Hamm is well-known by his contributions to the field of formal semantics.
- His research distinguishes itself by originality and a high level of mathematical sophistication.
- We especially name his work on nominalisation, which is based on Feferman's type free calculus, and his joint work with Michiel van Lambalgen on event semantics.
- The application of Feferman's type free calculus to nominalisation is an considerable improvement over competing frameworks, e.g. type free lambda calculus based on Scott domains and Frege structures.

Research

- Hamm's main work lies outside linguistic mainstream.
- He published with such distinguished researchers as Hans Kamp, Michiel van Lambalgen, and Ede Zimmermann.
- Co-authored introductory textbook on General Linguistics designed for German students in 1987
 - still widely used, and considered as one of the best in the field.

Michiel van Lambalgen

- Full professor of Logic and Cognitive Science
- Dept. of Philosophy, University of Amsterdam
- Born 1954





Michiel van Lambalgen

- 1982: MA Philosophy (with honors), Mathematics
- 1987: PhD dissertation on **Random sequences**, Dept. of Mathematics and Computer Science, University of Amsterdam
- 2001: Full professor of Logic and Cognitive Science



Research

Philosophy and foundations of mathematics and probability theory (1995):

- Origin of, and justification for, the axioms of set theory.
- Foundations of probability theory.
 - Interested in objectivist interpretation of probability theory
 - Provided a consistent formulation of probability as relative frequency.
 - Entailed revising the axioms of set theory (Dropped Axiom of Choice).

Research

Artificial intelligence and reasoning with uncertainty:

- Directed an NWO project on reasoning with uncertainty in AI from 1994.
 - ⇒ Focussed on reasoning with uncertainty in robotics.
- Interested in cognitive applications of AI (human perception and its relation to language)
- Applications of planning techniques to the semantics of tense and aspect.
- Practical work on reasoning with uncertainty; e. g.
 - March 2004, expert witness at the trial of the nurse L. de B., accused of 8 murders,
 - asked to look critically at the statistical argument used by the prosecution.

Research

Psychology of reasoning

- In 1998, started collaborating with psychologist Keith Stenning of Edinburgh University.
- Aim: bring the insights of modern logic to bear on the psychology of reasoning.
- Reanalyzed a number of classical experiments
- Work addresses
 - applications of nonmonotonic logics to reasoning phenomena
 - neural models of nonmonotonic reasoning
 - methodological issues in the psychology of reasoning
 - Deviant reasoning patterns in autism.
- Resulted in book: *Human Reasoning and Cognitive Science* (2009)



Fritz Hamm & Michiel van Lambalgen

- Their research not only leads to a significant improvement in empirical adequacy but also to important modifications of the logical framework.
- All future research on formal event semantics will have to take Hamm and Lambalgen's work into account.
- The Lotze Prize is an opportunity to give them due credit for their highly original research.