FDA137 Semantic Aspects of Logics for Action and Change (CUGS)

Lectures:

Preliminary: 8 lectures of 2x45 min each.

Recommended for

Graduate students.

The course was last given:

New course.

Goals

To familarize the participants with the basic issues in the validation and analysis of range of applicability for logics of actions and change, as well as with existing results in this area.

Prerequisites

Previous study of the C4 course "AI - Kunskapsrepresentation" or the CUGS course "Knowledge Representation" is required or at least strongly recommended.

Organization

Lectures and literature study by the participants.

Contents

Reasoning about actions and change is important for cognitive robotic systems, that is, systems with high-level autonomy. A number of logics for action and change have been proposed during the last ten years. Nonmonotonic inference is understood to be a necessary feature of such logics. The formal properties of those logics have been explored in some cases, but still there are several logics that appear to be practically plausible but whose properties are not well understood.

This course will present the lecturer's approach to analysing the properties of nonmonotonic logics of action and change, based on his book 'Features and Fluents' (Oxford University Press, 1994) as well as more recent contributions also by other authors. Generally speaking, the approach is to define an *underlying semantics* for classes of logics with similar expressivity, and then to investigate the *range of applicability* for each logic in such a semantics-defined class.

Literature

Erik Sandewall: Features and Fluents. More recent papers in Logic of Computation, KR96, AICOM, and ETAI. Paper by Pavlos Peppas at IJCAI 2001. Possibly papers by other authors (Thielscher, etc).

Teachers

Erik Sandewall.

Examiner

Erik Sandewall.

Schedule

Fall 2002.

Examination

Conventional written exam.

Credit

3 credits.