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Introduction to the NRAC Panel on Ontologies for Actions and Change

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The following is my idea of the topic for the panel:

By an "ontology" for actions and change, I mean a set of assumptions about the character of the world that one is reasoning about. For example, the choice of discrete vs continuous time, the choice to allow or not to allow for causation relations *between* events, and the choice to allow or not to allow for nondeterminism, are examples of such assumptions which together form an ontology.

It may be useful to distinguish between ontological and epistemological assumptions, where the latter are assumptions about *what we know* about the world. "All the actions/events are explicitly known" is an example of such an epistemological assumption.

Ontologies may be expressed formally or informally. I propose that the panel should focus on formally expressed ontologies.

One consequence of the definition is that the "frame assumption" or assumption of persistence must be built into the ontology. The situation calculus then does not represent an ontology, since commonsense scenario descriptions in sitcalc need to be complemented with additional axioms, minimization of models, or other similar devices.

The main workshop invitation mentions two families of ontologies, namely those represented by action languages (cal-A and successors) and by the features and fluents framework (that is, trajectory semantics and the approach of using underlying semantics). Ray has pointed out to me that GOLOG also represents an ontology that differs from the first two in important respects.

If you agree with me about this background, at least in its main parts, I propose that you might address the following topics (but not exhaustively!) in your introductory statements at the panel:

1) What ontologies = sets of ontological assumptions are in use at present?

2) How are they expressed formally?

3) What results have been obtained within and between those ontologies? What types of results are likely to be obtained in the near future?