Reasoning with Prioritized Defaults

Michail Gelfond, Tran Cao Son

Computer Science Department
University of Texas at El Paso

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Presented by:
Jakub Podlaha,
Vladislav Vavra

Outline

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Make Titles Informative. Use Uppercase Letters.

Subtitles are optional.

Defaults with different conclusions
e.g. legal reasoning, Reasoning with experts Knowledge

Outline

Two possible views

- develop "default" language, special syntax
- use logic programming syntax augmented by the preference relation

Outline

This Paper Approach

- a's are normally b's
- dynamic priorities
- give semantics without new general purpose nonmonotonic formalism
- elaboration tolerant (small changes in intuition - small changes in program)
- some inference mechanism already available

Logic Program P composed of

- logic program P composed of:
  - domain independent axioms
  - domain description L
  - notion of entailment between query and domain description

Outline

brave approach

include (resolve) all possible answer sets

...

Basic syntax

$$rule(r, l_0, [l_1, \ldots l_m]) \quad (1)$$

$$default(d, l_0, [l_1, \ldots l_m]) \quad (2)$$

$$conflict(d_1, d_2) \quad (3)$$

$$prefer(d_1, d_2) \quad (4)$$

Basic syntax - example

show "logic counter-part" as intuitive explanaiton
$l_0 \leftarrow l_1, \ldots, l_n$

Example - programming students

dept, mary, isin etc..

Outline

Entailment in domain description

Definition 2.2 We say that a domain description $\mathcal{D}$ entails a query q ($\mathcal{D} \models q$) if q belongs to every answer set of the program
$\mathcal{P}_\sigma(\mathcal{D}) = \mathcal{P}_\sigma \cup \{holds(l) \mid l \in fact(\mathcal{D})\} \cup laws(\mathcal{D})$.
$laws(\mathcal{D})$ denotes set of statements of the form 1 and 2

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Summary

- The first main message of your talk in one or two lines.
- The second main message of your talk in one or two lines.
- Perhaps a third message, but not more than that.

- Outlook
  - Something you haven't solved.
  - Something else you haven't solved.