An Introduction to SNePS

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1 SNePS 2.6

1.1 Overview

- A knowledge representation, reasoning, and acting system.
- Approximately 30 years of development.
- 64 people involved in its development.
- Academic, not "productized", system.
- Constantly being improved: suggestions and help appreciated.
- Implementation language: ANSI Common Lisp.
- Logic-based and Network-based.
- Interfaces: SNePSUL; **SNePSLOG**; Fragments of English.

1.2 Atomic Formulas in SNePSLOG

1.2.1 Simple Assertions

Demo: `assertions.snepslog`

1.2.2 Simple Queries: `?` and `askwh`

Demo: `queries.snepslog`

1.2.3 Functional Terms and Conjunctive Queries

Demo: `functions.snepslog`

1.2.4 Reified Propositions

Demo: `reified.snepslog`

1.2.5 `expert` and `normal` Modes

Demo: `expert.snepslog`

1.2.6 Unique Names Assumption and Uniqueness Principle

Demo: `unique.snepslog`

1.3 Reduction Inference

Demo: `reduction.snepslog`

1.4 Symmetric Arguments

Demo: `symmetric.snepslog`

1.5 Negation

1.5.1 Negated Formulas as Assertions

Demo: `negation.snepslog`

1.5.2 Querying: `?`, `ask`, `askifnot`, `askwh`, `askwhnot`

Demo: `asknegation.snepslog`

1.6 Nodes, Case Frames, and Cablesets

1.6.1 `show`

Demo: `nodes.snepslog`

1.6.2 Atomic and Molecular Nodes

See the examples in the diagrams produced by `show`.

1.6.3 Case Frames and Cablesets

See the examples in the diagrams produced by `show`.

1.7 Handling Contradictions, Part I

Demo: `contradictions1.snepslog`

1.8 Mode 3 and Path-Based Inference

1.8.1 Mode 3 and `define-frame`

Demo: `mode3.snepslog`

1.8.2 Path-Based Inference

Demo: `pb-inf.snepslog`

1.9 Node-Based Inference

1.9.1 Simple Implication, Forward and Backward Inference

Demo: `implication.snepslog`

1.9.2 Universal Quantification, ? *vs.* ??

Demo: `quantify.snepslog`

1.9.3 Bi-Directional Inference

Demo: `bidir.snepslog`

1.9.4 Lemmas: Retaining Derived Information

Demo: `lemmas.snepslog`

1.9.5 AndOr

Demo: `andor.snepslog`

1.9.6 Thresh

Demo: `thresh.snepslog`

1.9.7 Or-Entailment

Demo: `orEntailment.snepslog`

1.9.8 And-Entailment

Demo: `andEntailment.snepslog` illustrates:

- three ways of expressing conjoined antecedents;
- deleting a wff from the current context;
- the ATMS disbelieving implications derived from disbelieved hypotheses;
- the triggering of backward inference from forward inference;
- and the Unique Variable Binding Rule (UVBR).

1.9.9 Numerical Entailment

1.9.10 The Numerical Quantifier

Demo: `numQuant.snepslog`