Time event discovery from discourse representation structures and schedule ontology instantiation

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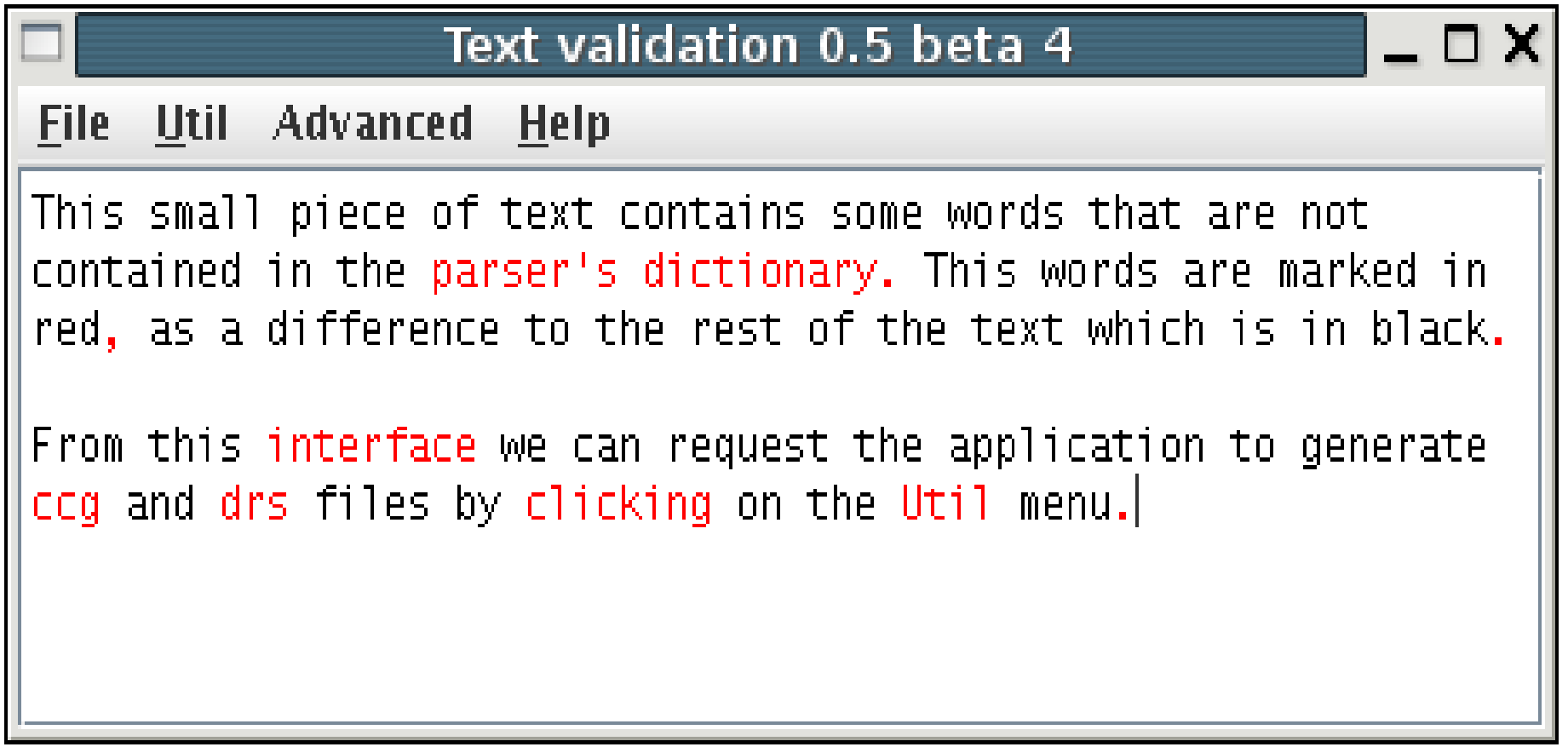
Agenda

- Introduction
- Working environment
- Discourse Representation Structures
- Object Oriented DRS
- Schedule Discovery in DRS
- Heuristics for argument discrimination
- Time event structure
- Towards Ontology instantiation
- Results
- Conclusion

Introduction

- ✔Ambient Intelligence AmI
- ✔Schedule Discovery
- ✔Discourse Representation Theory
- ✔DRT Implementations

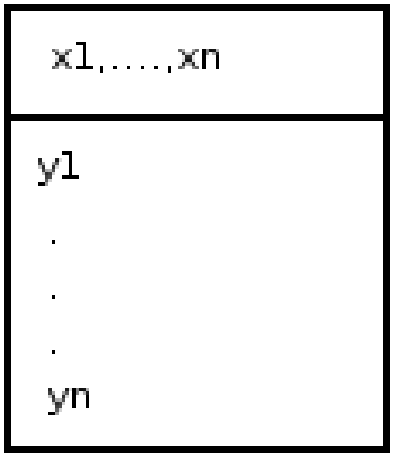
Working environment



Discourse Representation Structures

A formal definition of what a DRS is:

1.- if x1,....xn are discourse referents (n>=0) and y1,...,yn are conditions then:



is a DRS.

2.- If R is a relation symbol of arity n, and t1,...,tn are terms, then R(t1,...,tn) is a condition.

3.- If t1 and t2 are terms then t1=12 is a condition.

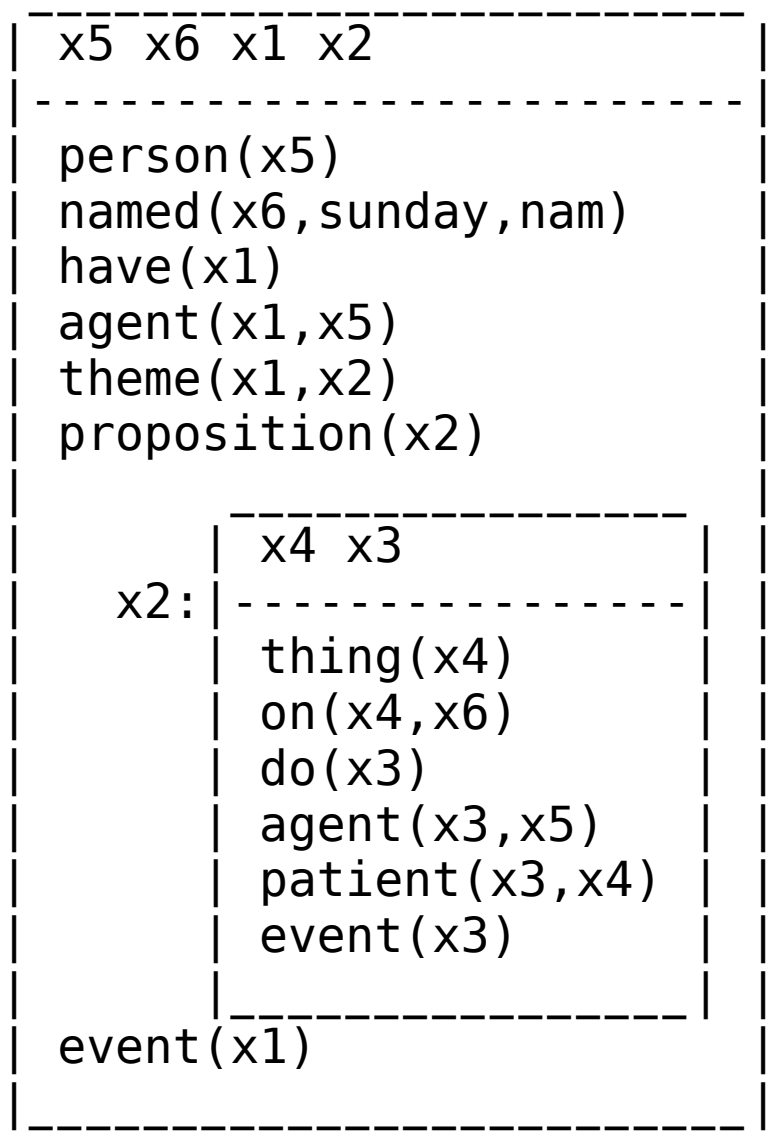
4.- If B is a DRS, then ¬B is a condition.

5.- If B1 and B2 are DRSs, then B1vB2 is a condition.

6.- If B1 and B2 are DRSs, then B1->B2 is a condition.

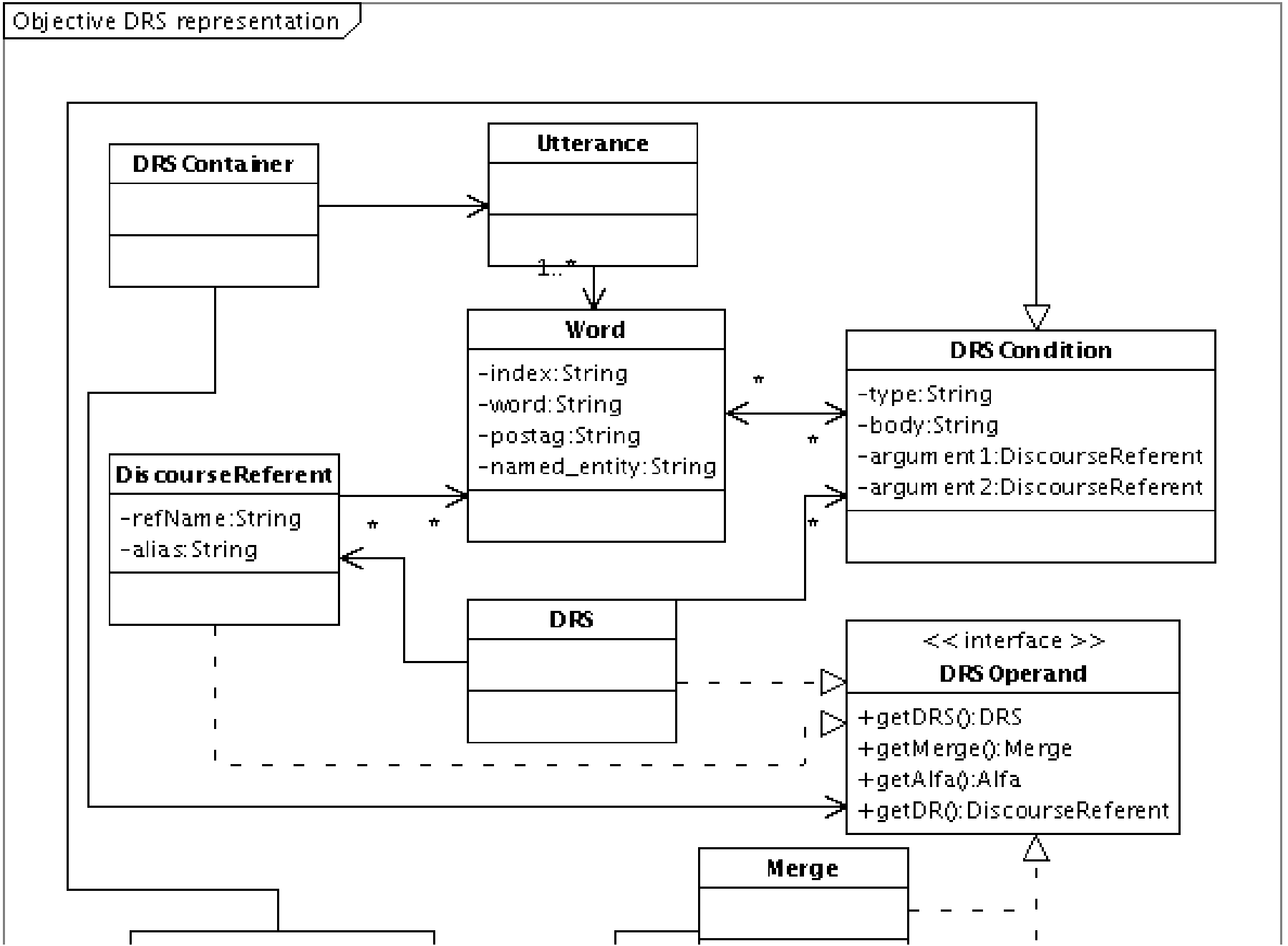
7.- Nothing else is a DRS or a condition.

Example

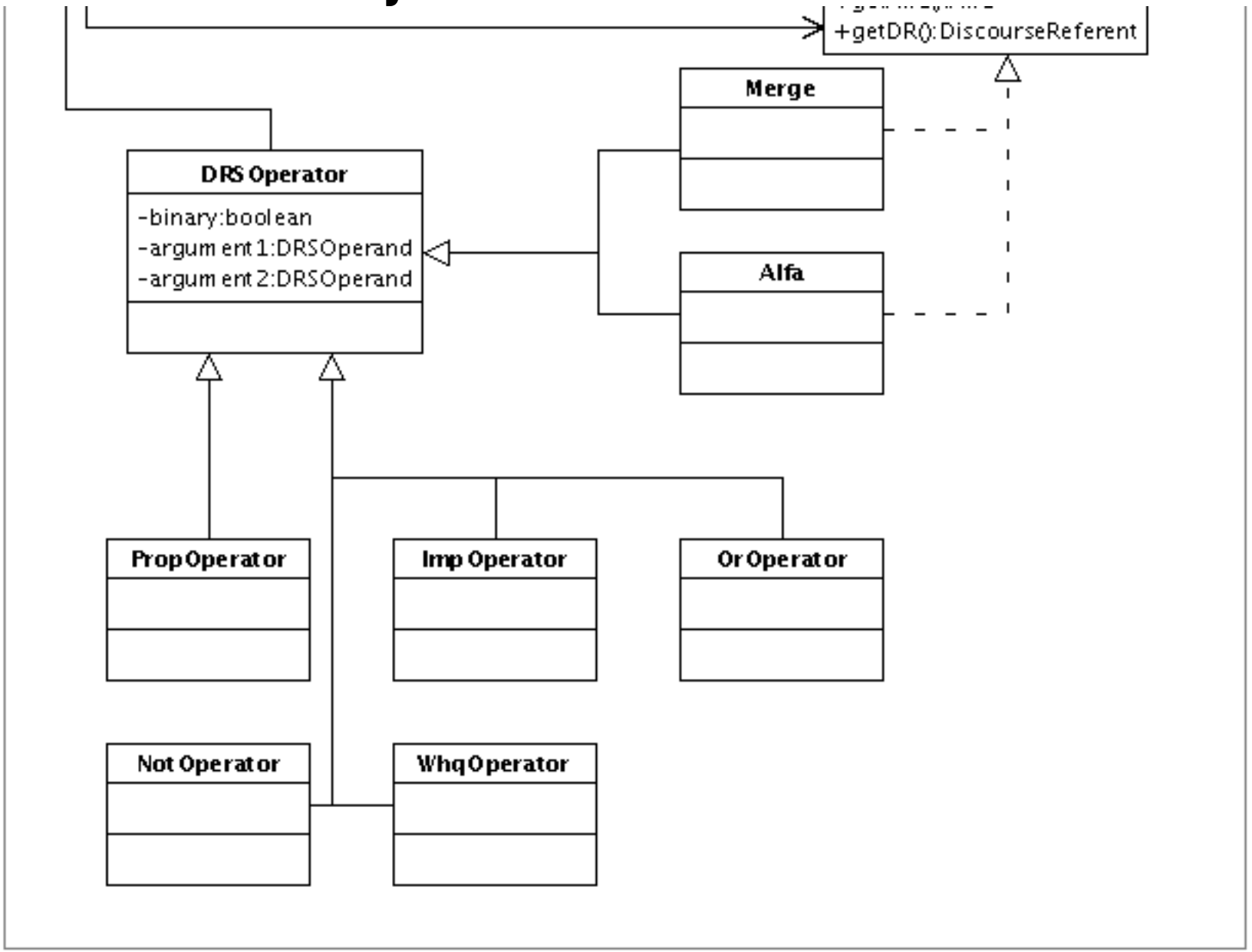


I have to do something on Sunday

Object Oriented DRS



Object Oriented DRS



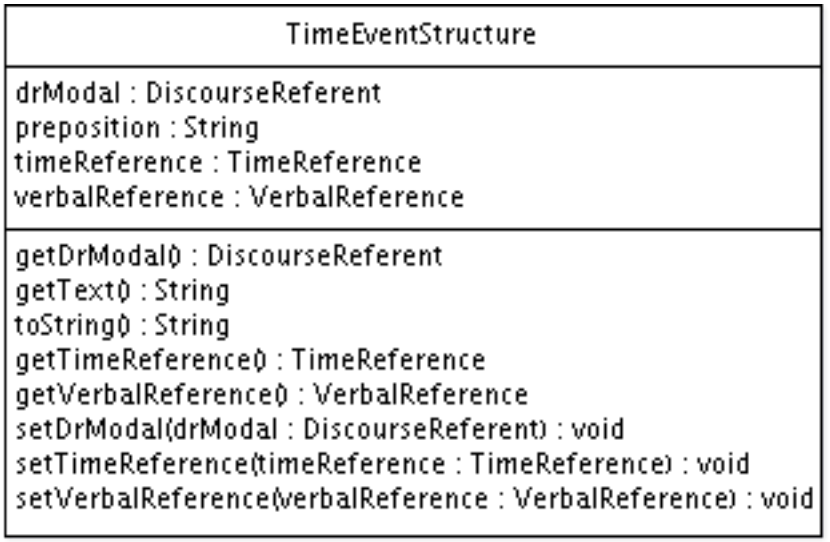
Schedule discovery in DRS

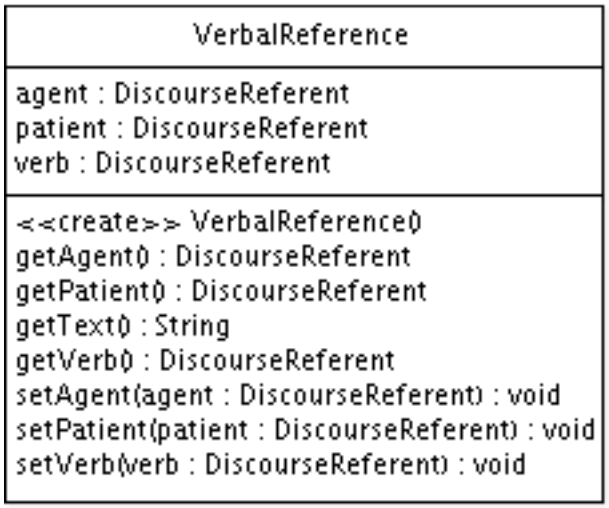
- ✓Pre-testing
- ✓Time prepositions
- ✓DRS representation of prepositions

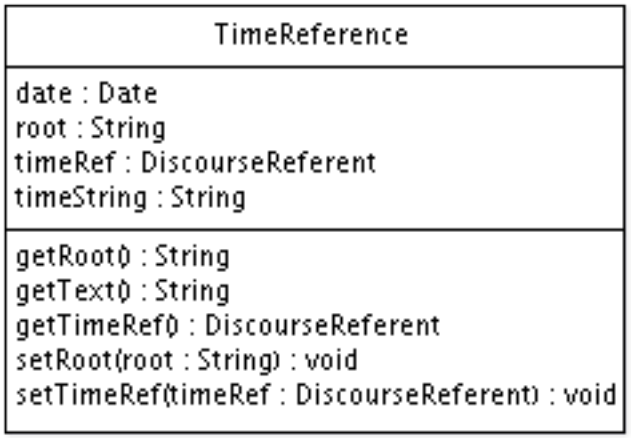
Heuristics for argument discrimination

- ✓Lexical discrimination
- ✓Named entity
- ✓Listed arguments
- ✓Case Based Reasoning?

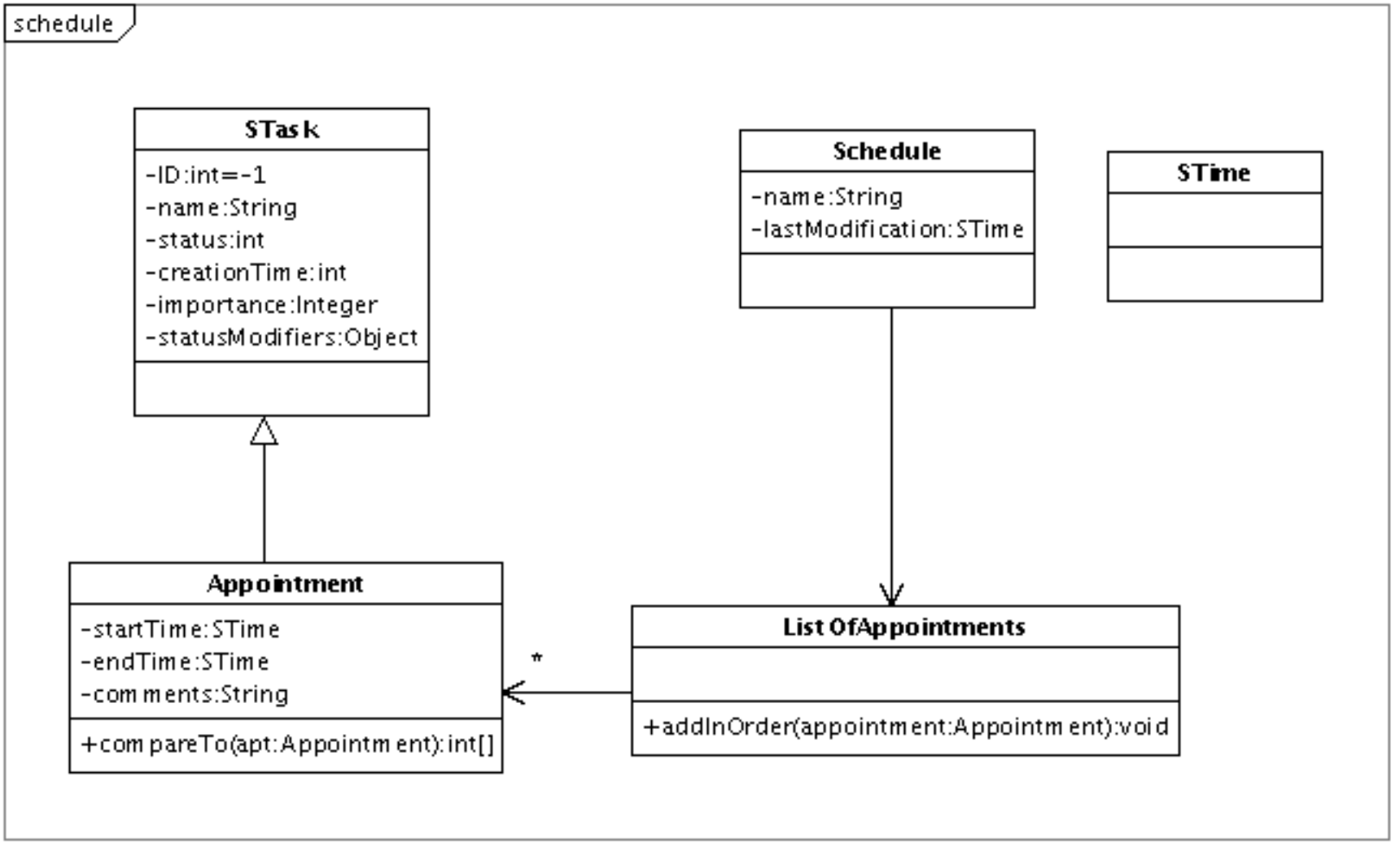
TimeEventStructure







Towards ontology instantiation



Results

- 74.3 % of success on current implementation
- The most common unrecognized events
- Reconstruction of utterance

Conclusion