Fundamentals of Artificial Intelligence and Knowledge Representation –

academic year 2022—2023: Module 2 (Chesani)

previous academic years: Module 2 (ex-Gaspari), Module 4 (Chesani)

Prof. Federico Chesani – 16th of January, 2023

Available time: 1h.

1) The candidate is invited to define a Prolog predicate **`filter/3`**, that receives in input two lists **`L1`** and L2 (all containing ground elements), and returns in output a list **`L3`**. The list **`L3`** will contain all the elements appearing in both **`L1`** and **`L2`**, but without repetitions.
   The candidate should report any auxiliary predicate that will be used in the solution.

   For example, if invoked with:
   ```
   :- filter([1,3,4,3], [4,5,3,7,3], L3).
   ```
   The expected outcome is:
   ```
   Yes, L3/[4,3]
   ```

2) The candidate is invited to introduce the vanilla meta-interpreter, and to explain its clauses.

3) The candidate is invited to describe the predicates/terminology used in the definition of the Event Calculus Framework.

4) The candidate is invited to briefly introduce the notion of Semantic Networks, and to highlight some of the limits that were present in their original formulation.

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Solution

1) The candidate is invited to …

```
filter([], _, []) :- !.
filter([H | T], L2, [H|Rest]) :-
    member(H, L2),
    filter(T, L2, Rest),
    \+member(H, Rest),
    !.
filter([_ | T], L2, Rest) :-
    filter(T, L2, Rest).
```

2) *The candidate is invited …*

See the slides

3) *The candidate is invited …*

See the slides

4) *The candidate is invited …*

See the slides