

Domain-Independent Text Generation based on Image Sequence Evaluation

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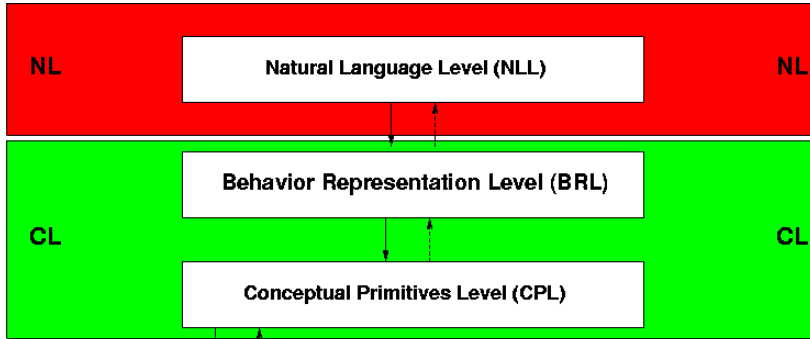
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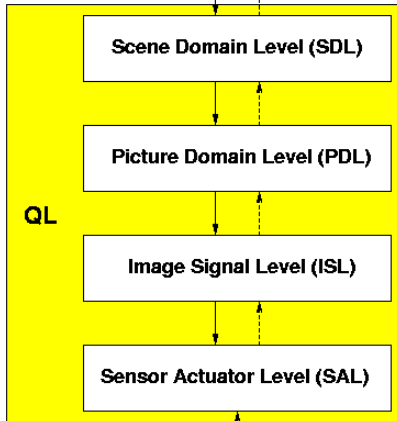
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System Overview



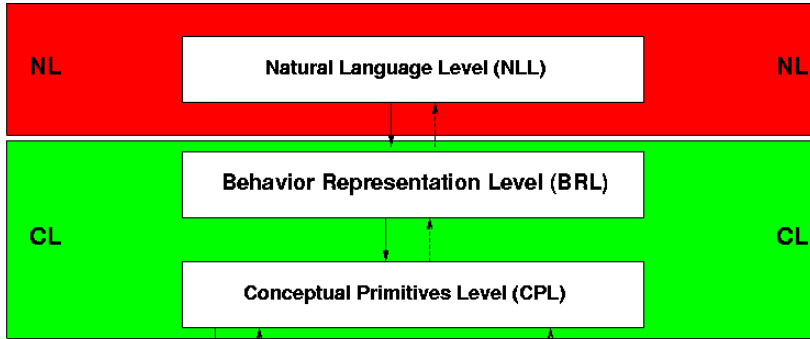
How to say

What to say



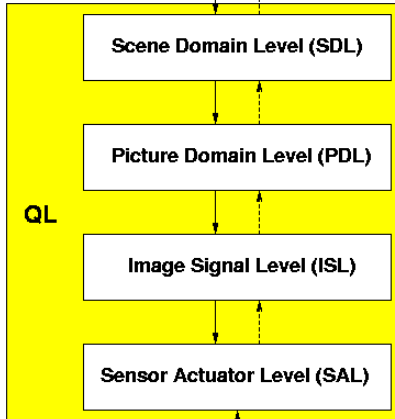
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System Overview (2)



How to say

What to say



Consequences:

- add new models to BRL
- no changes for NLL

Goals:

- Interface CL/NL suitable
- NLL domain-independent



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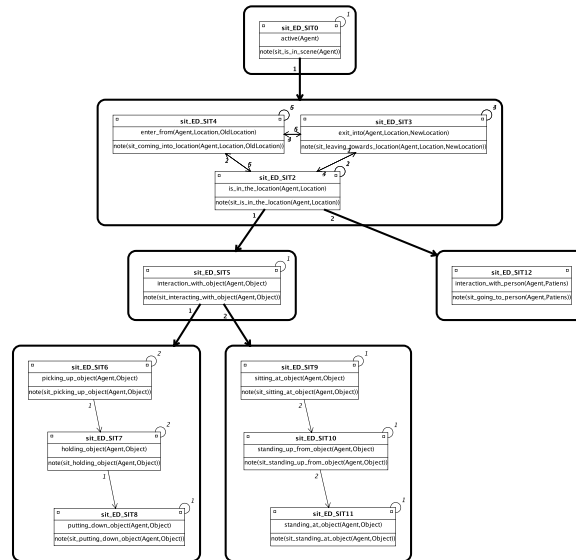
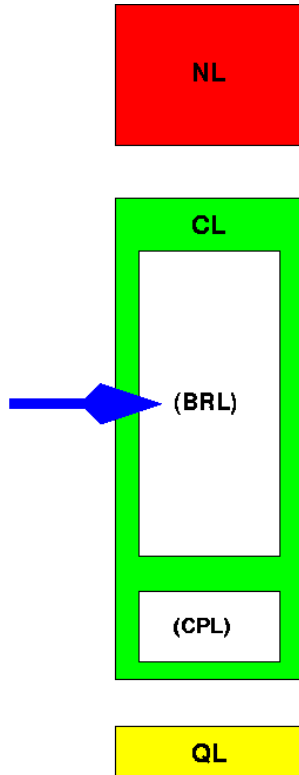
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Adding new models to the BRL



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Adding new models to the BRL (2)



The Fawltly Towers reception lobby. The main entrance is at the back, with the stairs to the right. The entrance to the dining room is in the right wall; on the left, the reception desk running along the left wall, with the entrance to the office behind it. The entrance on the bar is beyond the desk.

Basil: (on the phone) One double room without bath for the 16th, 17th and 18th ... yes, and if you'd be so good as to confirm by letter? ... thank you so much, goodbye. (puts the phone down).

Sybil: (bustling in) Have you made up the bill for room twelve, Basil? [...]

Basil: (realizes that Sybil is no longer there; goes across to Manuel who has come in carrying three breakfast trays) Manuel! [...] (he points to each tray in turn)

- 1.
- 2.
- 3.
- 4.

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1. Spoken Dialogue

2.

3.

4.

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1. Spoken Dialogue
2. Description of Location
- 3.
- 4.

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Adding new models to the BRL (2)



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1. Spoken Dialogue
2. Description of Location
3. Miming and Gesture
- 4.

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Adding new models to the BRL (2)



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1. Spoken Dialogue
2. Description of Location
3. Miming and Gesture
4. **Actions**

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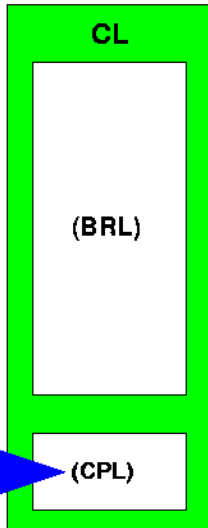
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Synthetic primitive conceptual description



NL

`current_location(Location)`



CL

(BRL)

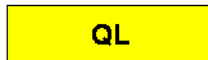
(CPL)

`is_in_the_location(Agent, Location)`

`enter_from(Agent, Location, OldLocation)`

`exit_into(Agent, Location, NewLocation)`

`interact_with(Agent, Object)`



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Initial Results



Script: **on the phone**

SGT: 562 : 759 ! sit_holding_object(basil,phone).

Text: *Basil is phoning.*

Script: **bustling in**

SGT: 730 : 759 ! sit_coming_into_location(sybil,lobby,office).

Text: *Sybil comes in from the office.*

Script: **goes across to Manuel who has come in carrying three breakfast trays.**

SGT: 1200 : 1279 ! sit_coming_into_location(manuel,lobby,dining_room) .Go Back

1280 : 5749 ! sit_holding_object(manuel,tray).

1280 : 1300 ! sit_going_to_person(basil,manuel).

Text: *Manuel comes in from the dining room.
Basil goes to Manuel. Manuel carries the tray.*

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Initial Results (2)



- + SGT-formalism is basically able to cope with all actions appearing in the script.
- + Instantiation of the SGT is based on just 5 primitive predicates.
- NLL turned out *not* to be domain independent.

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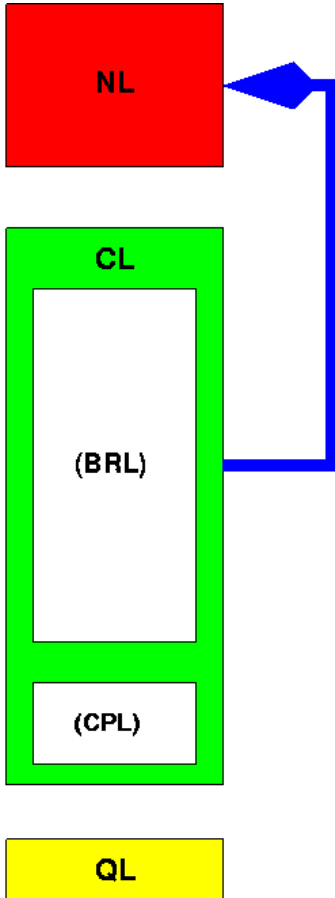
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Scenario 1



BRL sends situation name + individuals

```
562 : 760 ! sit_holding_object (basil, phone) .
```

+ suitable interface (What to say vs. How to say)

- NLL needs domain dependent knowledge

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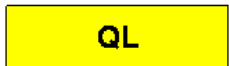
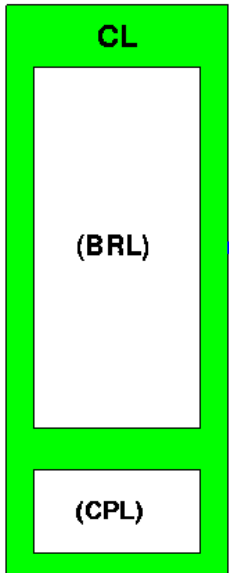
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Scenario 2



BRL sends instantiated template

`562 : 760 ! is_phoning(basil) .`

+ NLL does not need domain dependent knowledge

- interface not suitable

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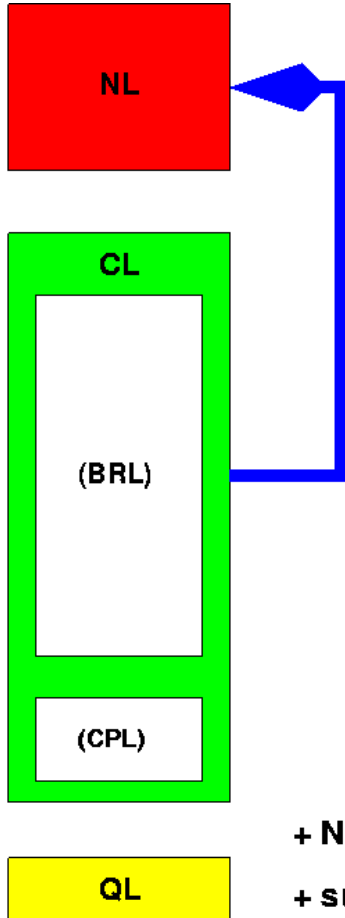
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Scenario 3



In the BRL:

- Set of basic relations is defined.
- Subset associated to each situation.

BRL sends instantiated basic relation

562 : 760 ! hold(basil,phone) .

```
VERB phone {                               Lexicon (NLL)
  hold(Agent, Object)
  person(Agent)
  phone(Object)
}

VERB carry {
  hold(Agent, Object)
  person(Agent)
  portable(Object)
}
```

- + NLL does not need domain dependent knowledge
- + suitable interface

Final Results



- + SGT-formalism is basically able to cope with all actions appearing in the script.
- + Instantiation of the SGT is based on just 5 primitive predicates.
- + NLL now domain independent.
- + Suitable interface between CL and NL

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