

# Visual Pattern Recognition based on Bounded Rationality. Experimental Model

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# Experimental model

- Visual Pattern, why?
- Here BR is *not related to a product* – deliver Lena at pixel level precision – but rather to providing information about Lena for everyone who needs them.
- Every service is performed by a live entity,
  - if biological – human
  - if virtual – agent
- apply BR to simplify visual complexity to be able to transmit only what's needed
- focus on user
- level of granularity
- feature – relevance to the target

# Experimental model

Dialog

```
switch(client) {
```



```
  case of: client_1
```



```
  case of: client_2
```

```
  .  
  .  
  .
```



```
  case of: client_n
```

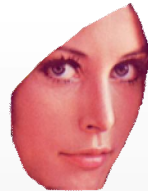


```
  default:
```

```
}
```

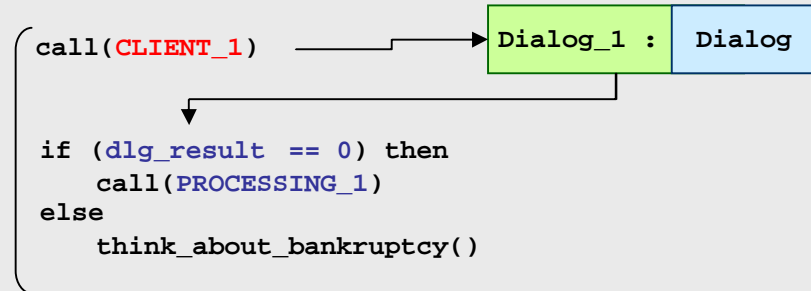
Features of the interest area (technical variables)

- location of the interest area
- precision for the interest area
- imprecision for the complementary area

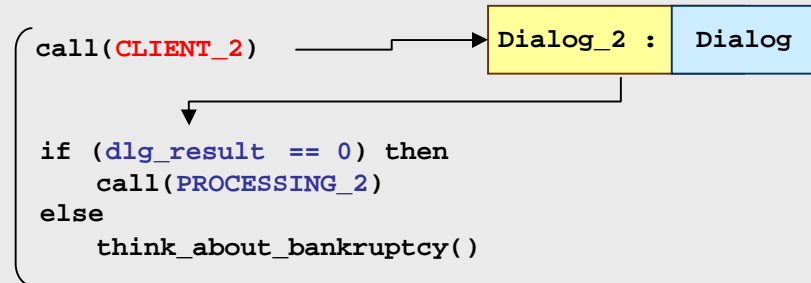


```
switch(CLIENT)
```

```
case: CLIENT_1
```

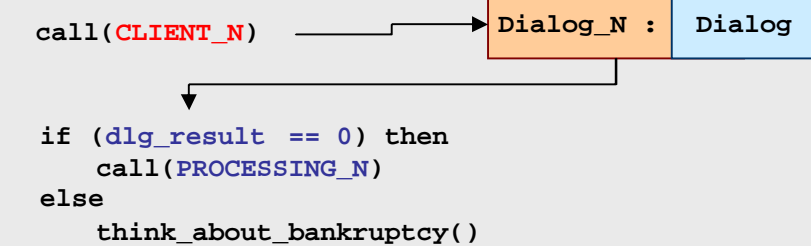


```
case: CLIENT_2
```



```
...
```

```
case: CLIENT_N
```



```
case: OTHERWISE
```

```
[ do_defaults()
```

Common Global Memory

// TO DO List

```
switch( PROCESSING )
```

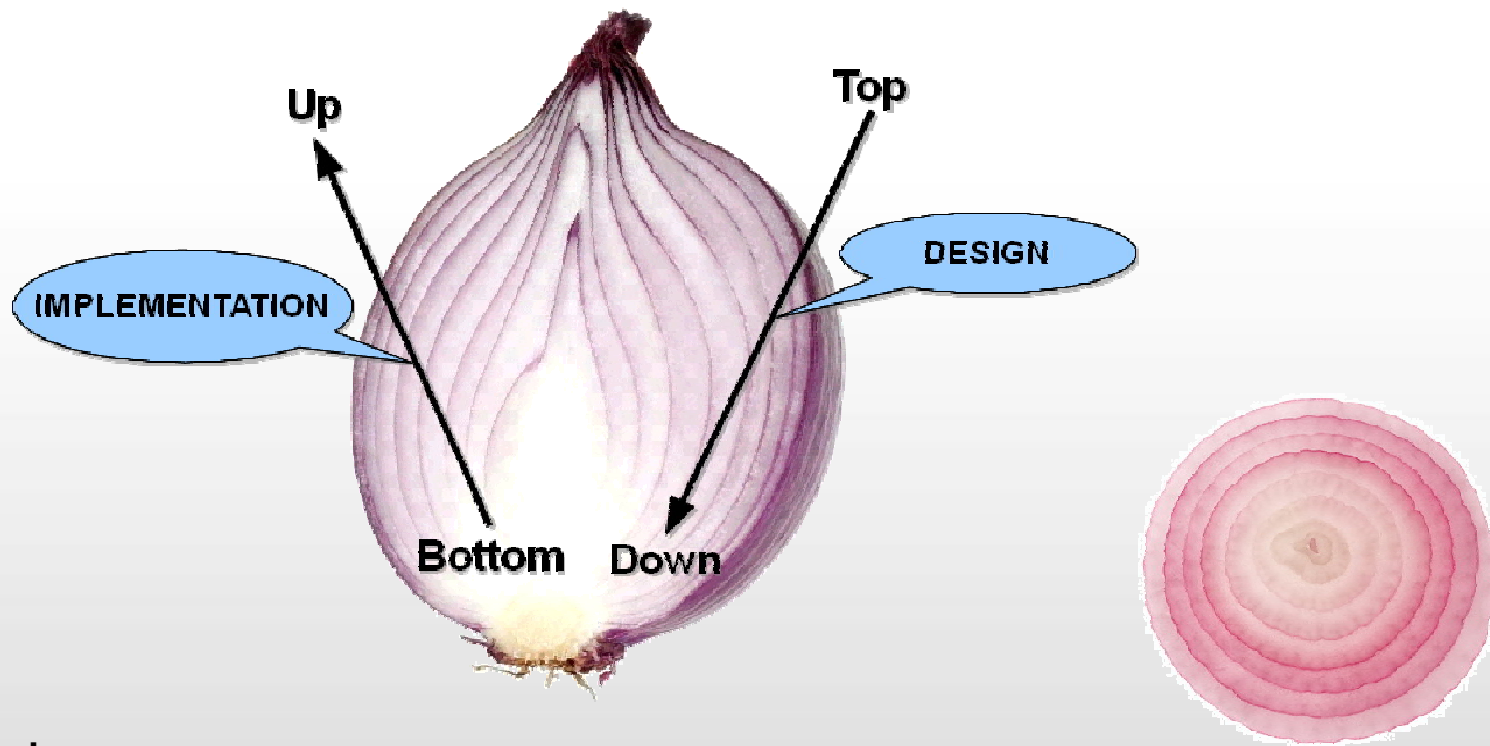
```
case: PROCESSING_1  
    // Lenas's mother Requirements/specifications/features  
  
    foreach( requirement ) // from Dialog_1  
        do_number_crunching(image, requirement)  
  
case: PROCESSING_2 // Dumpy processing  
  
    foreach( requirement ) // from Dialog_2  
        do_number_crunching(image, requirement)  
  
...  
  
case: PROCESSING_N // Detective  
  
    foreach( requirement ) // from Dialog_N  
        do_number_crunching(image, requirement)  
  
case: OTHERWISE // oioi
```

|                      |
|----------------------|
| Common Global Memory |
|----------------------|

|               |
|---------------|
| // TO DO List |
|---------------|

|    |
|----|
| -- |
|----|

# Onion principle – Successive prototyping



Layers:

- 1 - general dialog
- 2 - dialog 1 ... dialog n
- 3 - adding processing for the dialog, processing 1... processing n
- 4 - for a dialog k, have the sequence dialog + specific dialog for case k
- 5 - on processing, a general processing

# Onion principle – Successive prototyping



- Its exterior gives no clue as to the complexity of the layers within. It is at the *same time simple and complex*.
- There is *no magic number* for layers and slices.
- The important thing to do is *to work with the level of detail that is useful: the level that works*.
- "big picture" person who would rather limit the details - prefer to work with the short list of "essentials".
- detail minded person who likes to analyze the inner workings of everything - may find the long complex list more attractive.

## Conclusions and future work

- Precision is against nature and the opposite of precision is fuzziness.
- Ever more services have to be provided in line with the “just in time” (JIT) paradigm;
- Developing applications for JIT services implies both bounded rationality as fact of life and artificial intelligence as powerful IT instrument.
- BR as response to JIT
- Dialog – evolution from textual to non textual/multimodal



# Thank You!

