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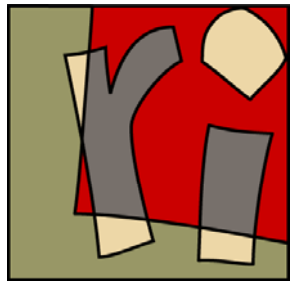

The Mythical « Architectural Level »

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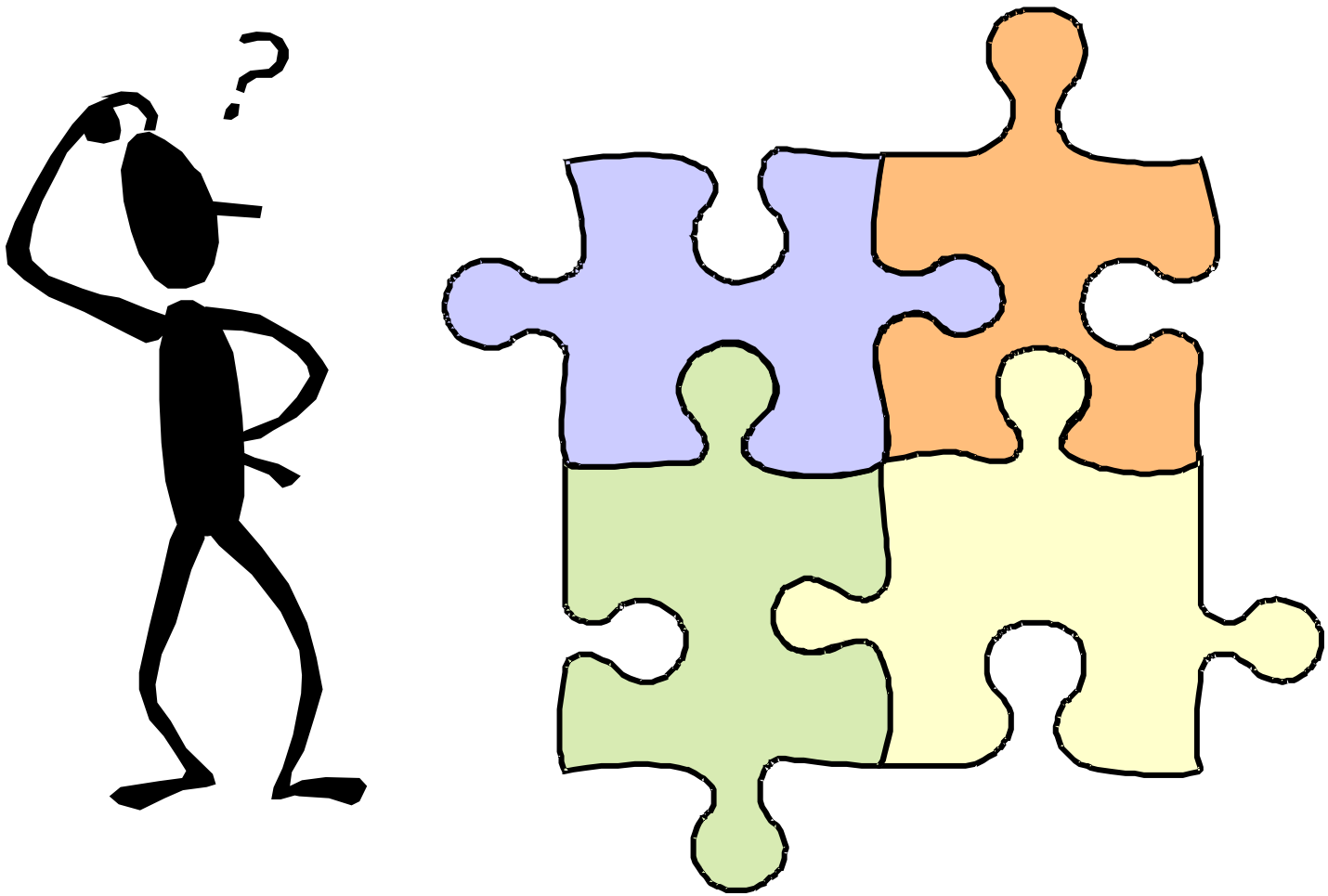
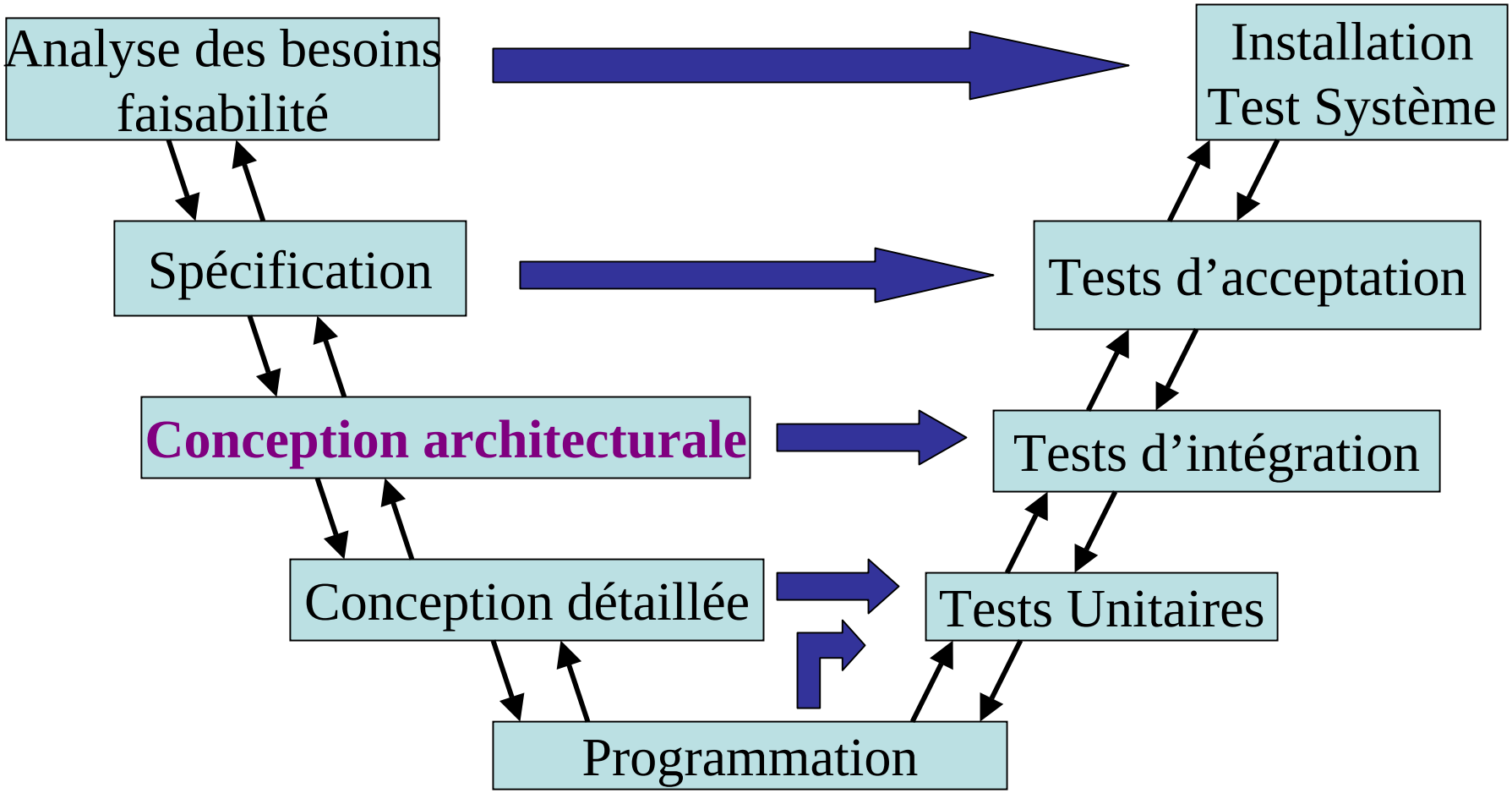
Architectural Level?



What I teach… is not realistic☹



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Are architectural assumptions any different from design assumptions?

- *Architectural assumptions are often design assumptions*
- *Some design assumptions are not architectural ones…*
- **Actually architectural assumptions/decisions occur/are made everywhere**
- *Components may have some architecture*
  - in some case, it is constrained (or it constrains) the way they can be connected

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What I teach… later on, and they are lost!

- *There is some structure of the global specification*
  - it mainly result from the way requirements have been captured
- *There will be some architecture of the system*
  - it is a compromise between some high level requirements and some low level ones *(and even middle level ones…)*
  - architectural choices are strongly interdependent on component design decisions, and vice-versa

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Going back to…

- *encapsulation, confinement, orthogonality, etc*
  - well-known requirements on components
  - f. i. *orthogonal design:*
    - *a component of the system does not create side effects to other components*
    - *global properties of a system consisting of components can then be stated strictly*
- *These qualitative component attributes are essential for global dependability*
  - they deeply affect the way some compositions behave

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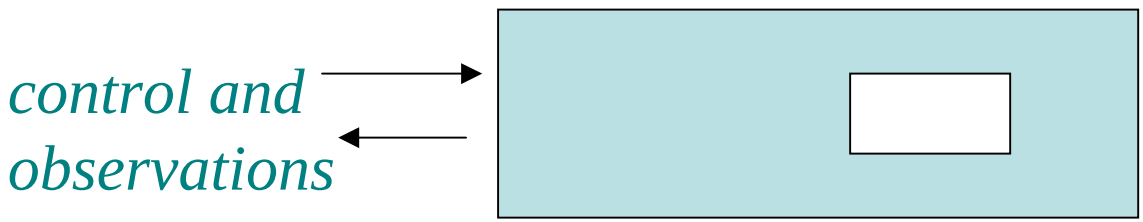
Reasoning about dependability

- *At the architectural level(s), need for combining qualitative and quantitative attributes*
- *Putting together different models, different formal systems…*

still a challenge!

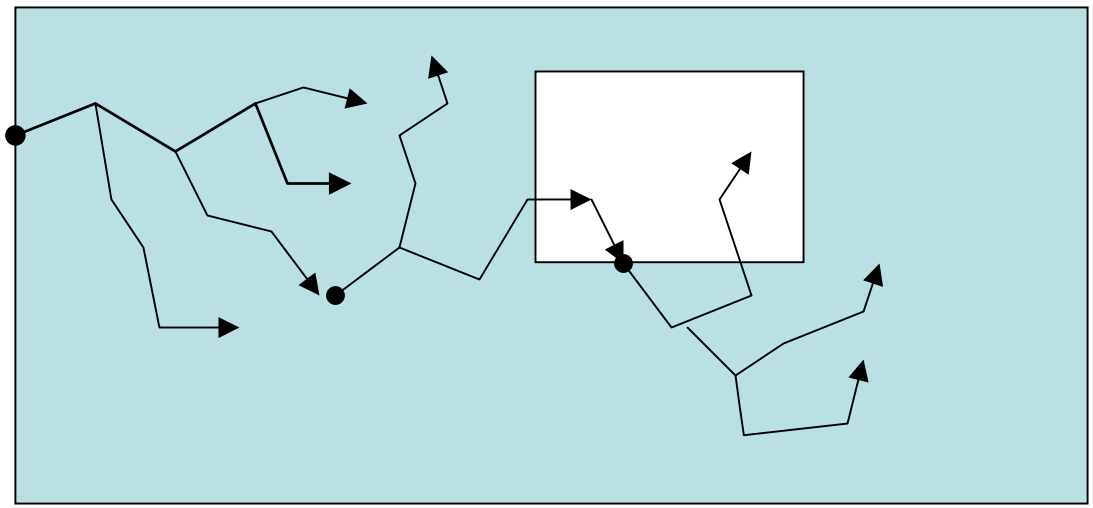
Embedded components testing

- *Big systems modeled as asynchronous products of components*
  - Each component is modeled by some transition system
  - Some components can be only activated when embedded in a system



« Hit or Jump »

Fatiha Zaidi, 2002



Depth-first search (bounded) of the huge global graph

- the component is not reached: one path only is kept (future test),
- and you start again until the component transitions are covered…