

Testing and Validating a KB

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Why Test?

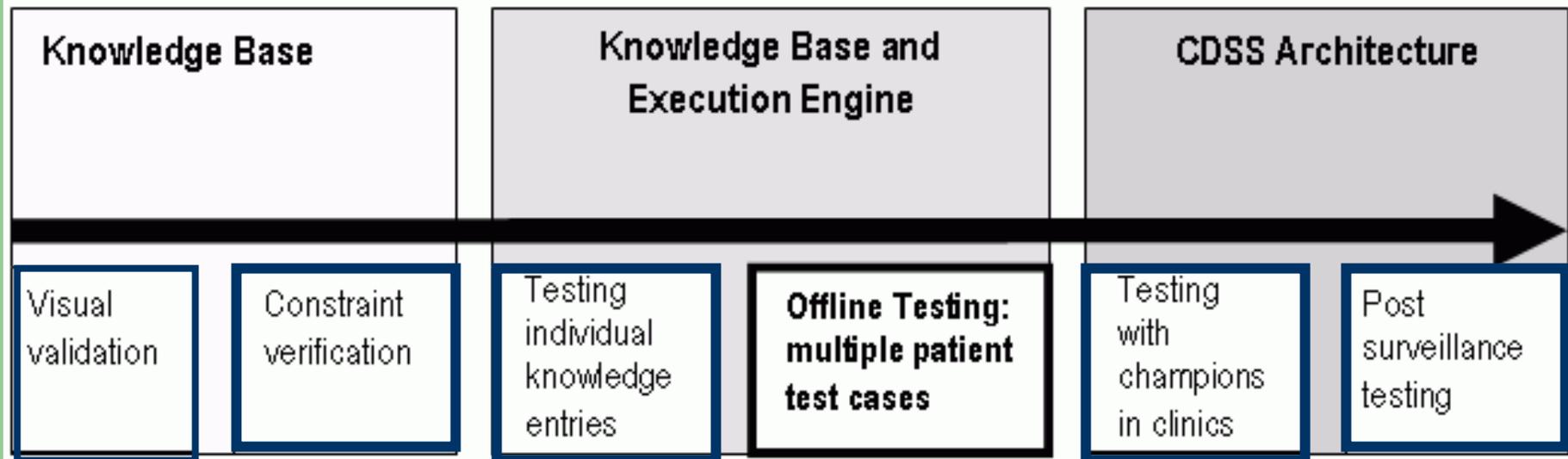
- All new software contain errors
- Myers defines testing as “the process of executing a program with the intent of finding errors”
- Goal is to improve accuracy and define boundaries

What are we testing?

- KB
- KB & guideline interpreter
- KB, guideline interpreter, data extraction, ...
partial “ATHENA Architecture”
- KB, guideline interpreter, data extraction,
communication between CPRS and DSS, ...
in summary “ATHENA Architecture”

Step by Step Testing

Testing phases in the development of a CDSS



Visual Validation

- Browse through the KB for face validity
- Limitations:
 - Not easy
 - High complexity
 - Several layers of knowledge
 - Intricate interaction between components

swt1

Can you show what Nadeem is doing in generating HTML output of KB as a way to assist visual validation?

Samson Tu, 3/20/2006

Constraint checking in Protégé

- **Facet constraint**

- Tool in Protégé to check for constraints on single property (e.g., missing required value)
- Easy
- Limitation:
 - Only checks for constraints on single property

- **PAL constraint**

- Checking constraints on complex relationships
- Hard to write and use

Testing Individual Knowledge Entries

- Use the test tool environment to observe output
- Easy
- Immediate response
- Limitation:
 - Testing limited data points

Offline Testing

- Test 100+ patient cases with “real” data
- Compares DSS output with MD output
- Limitation:
 - One MD’s perspective
 - Patient data is fixed

Testing with Champions

- Deployment to limited number of clinicians
- Evaluate full CDSS architecture
- Patient cases are more representative
- Limitation
 - Clinicians usually don't have time to explore all the content

Post Surveillance Testing

- Deployment to large number of clinicians
- Real time use in many clinics
- Feedback textbox captures clinicians comments in context
- Limitation
 - Relies on clinician feedback

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Testing phases in the development of a CDSS

