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Integration of Agent-based Generalisation with Mainstream Technologies and other System Components

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Integration of Agent-based Generalisation with Mainstream Technologies and other System Components

- Extensible Architecture – Open Standards
- Degree of Automation
- Assumptions and Real World Issues
- Data Quality
- Data Models
- Examples
- Incremental Updates

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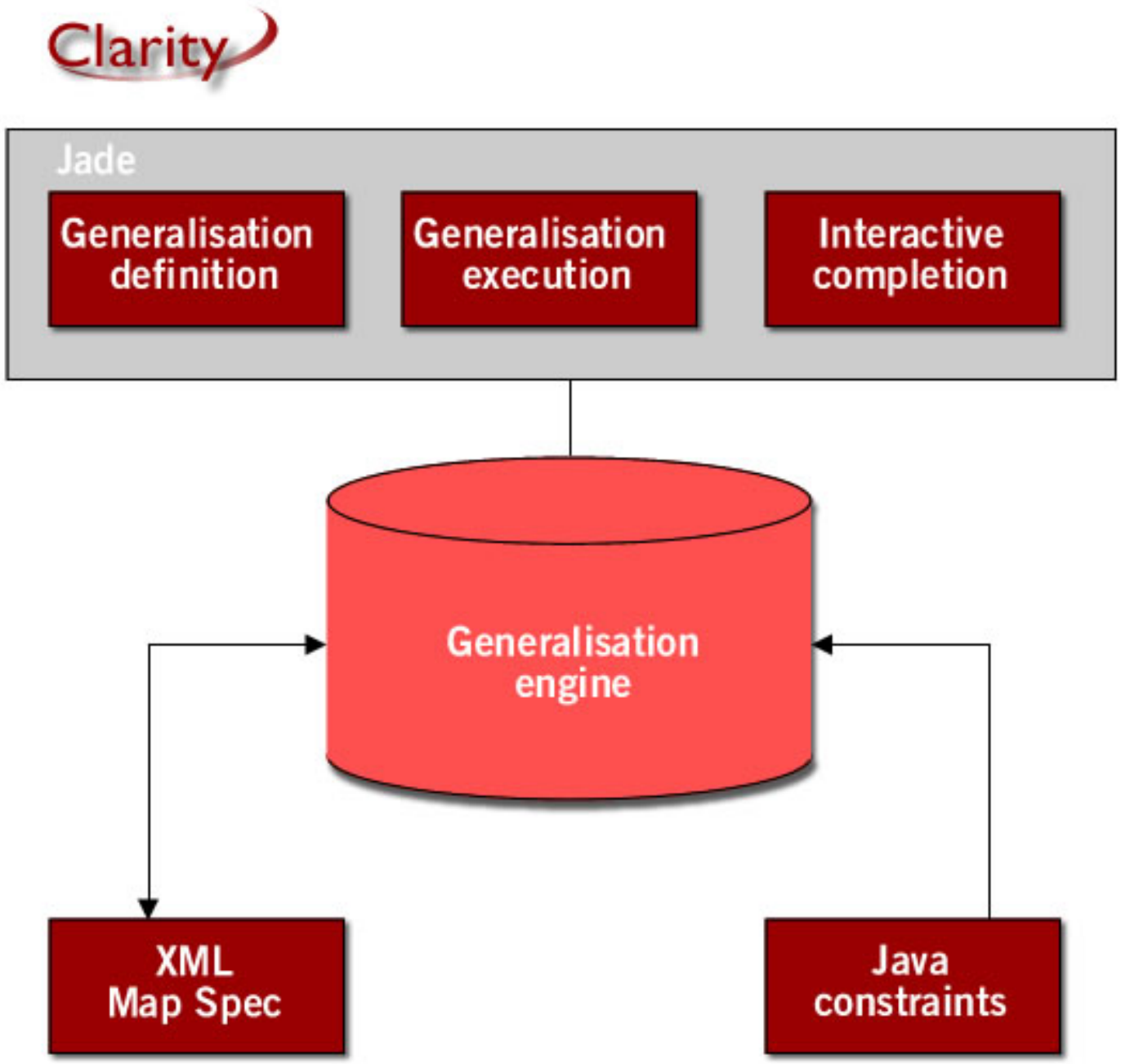
Clarity
Jade
Generalisation definition
Generalisation execution
Interactive completion
Generalisation engine
XML Map Spec
Java constraints

Degree of Automation

(Fully) Automated Generalisation ?

Model Generalisation: **95 – 100%**

Cartographic Generalisation: **70 – 90%**

Refer to user experience papers for time and cost savings

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Assumptions and Real World Issues

- Consistently (very) good quality data
- Suitable and consistent data models – for source and target data models
- Data models must be adhered to

Is this available?

Is validation an integral part of generalisation?

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Data Quality

Why is this crucial for generalisation?

- Context dependent processing
- Reliance on topology
- Reliance on assumptions in the data model
- Any automated process relies on the correctness of the data!

Data Quality

How to cope with ‘real world’ data quality?

- Validate it
- Correct it

Ensure the all processes are ‘robust’ –
design and program algorithms defensively

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Robust Processes

- Garbage in – garbage out
- But automatic generalisation is context dependent
- A little garbage in – a lot of garbage out

- Limit the effect of data errors
- Bring the errors to the user's attention
- Ensure processes are error-tolerant – neither premature termination nor excessive error amplification

Suitable Data Model

- Source and target data model must be consistent and well matched.
- Target data model should be defined with automatic generalisation in mind – as opposed to data collection
- Data model and rules ideally should be ‘machine-readable’ – rules should not be vague

‘The Devil is in the Detail’

- Lack of definition of task
  - *‘all the objects required on a 1:50K map...’*
- *Necessary data missing in data model*
  - *‘include all the masts that are higher than 30m’ - but height is not recorded in the source data model*
- *Lack of granularity in the data model*
  - *‘Distinguish between bridges and underpasses’ – but not differentiated in data model*
- *Non-explicit constraints e.g. on linear objects derived from area objects*
  - *‘Runways and taxiways must be lines, but only runways must be constrained to be straight’*

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Incremental Updates

- Data currency and quality in the source data model will improve over time
- These changes must be passed on to the target data model(s)
- Close links between the source and target ensure minimal rework
  - References between data models
  - Preservation and integration of manual edits

Thank you!

Questions

and

Comments?

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