FACULTY OF ENGINEERING AND ARCHITECTURE

IDLab
INTERNET & DATA LAB

Towards a Uniform User Interface for Editing Data Shapes

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Garbage In, Garbage Out?

Data shapes

Easy editing is important

"Fitness for use"

Constraint languages:
declaration and implementation are decoupled

- SHACL (W3C Recommendation)
- ShEx
- ...

Machine-processability in mind

What are the necessary features for *visually* editing data shapes?

Outline

1. SOTA
2. Features
3. PoC: unSHACLed
    - UI
    - Features
4. Conclusions

Outline

State of the Art

Data shapes

Validation based on: OWL | SPARQL | SHACL, ShEx

Data shape editors

Depend on the (constraint) language or
enforce a linear workflow

Editors

Data editors: text-based, form-based, use-case specific

Ontology editors: graph-based, indented-tree-based, UML-based

SPARQL editors: text-based

Linked Data generation rule editors: form-based, graph-based

Outline

1. SOTA
2. **Features**
3. PoC: unSHACLed
   - UI
   - Features
4. Conclusions

Desired Features for Data Shape Editing

1. Independence of constraint language
2. Support multiple data sources
3. Support different serializations
4. Support multiple ontologies
5. Multiple alternative editing approaches
6. Non-linear workflows
7. Independence of execution

Outline

unSHACLed

Visual Data Shapes editor as Web application

Drag-and-drop loaded data graphs and data shapes

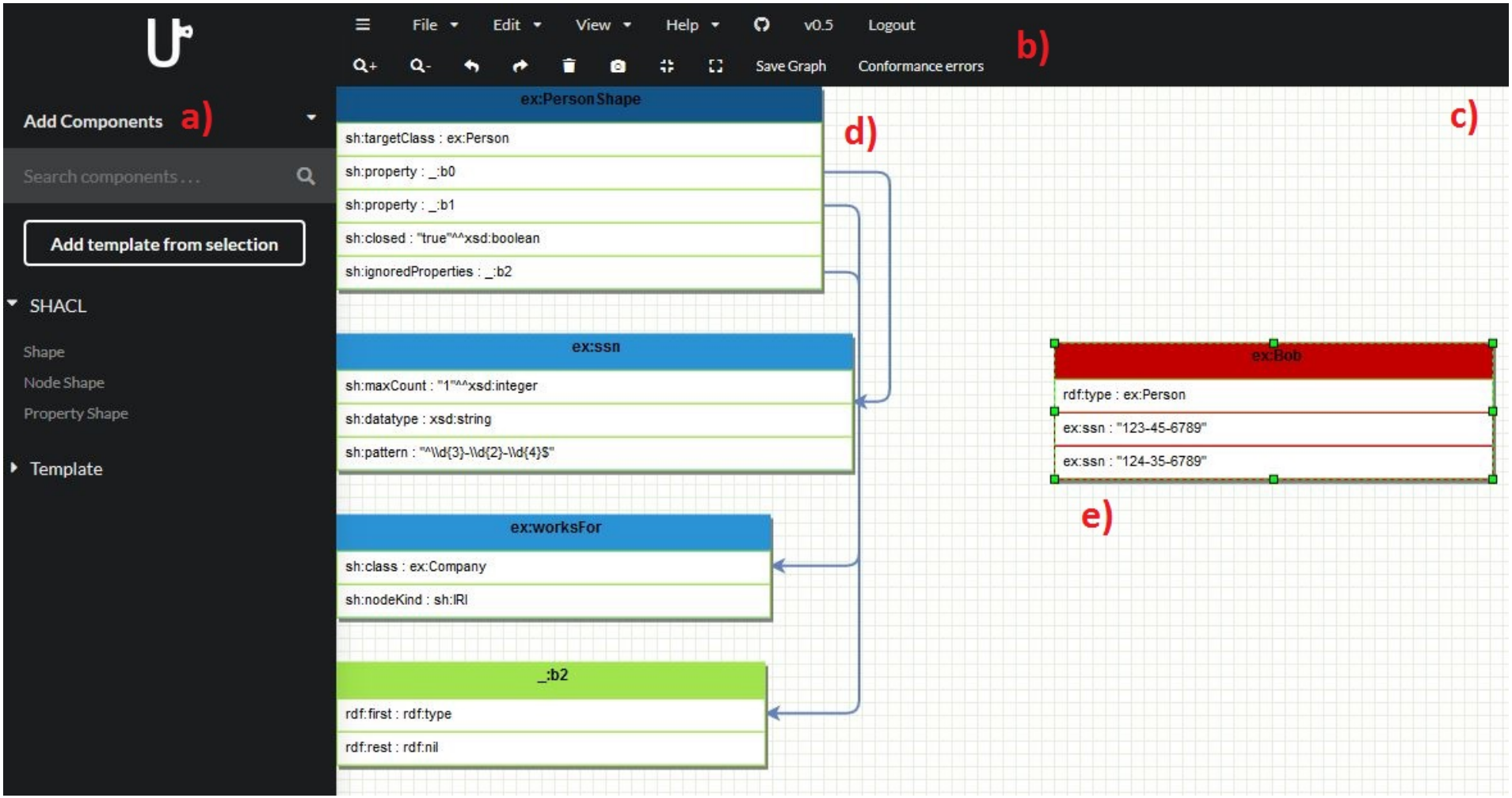
Add data shapes using templates

Get visual feedback on conformance

Export shape

https://w3id.org/imec/unshacled/app

The unSHACLED UI, consisting of an ***Overview Sidebar*** (left), an ***Action Toolbar*** (top), and an ***Editing Area*** (middle-right)



Different elements enable the different features

Features	UI Element		
	Overview Sidebar	*Action Toolbar*	*Editing Area*
F1. Independence of constraint language	✓		✓
F2. Support multiple data sources		✓	✓
F3. Support different serializations		✓	
F4. Support multiple ontologies		✓	
F5. Multiple alternative modeling approaches			✓
F6. Non-linear workflows	✓	✓	✓
F7. Independence of execution		✓	

Outline

Conclusions

No need to write RDF / SHACL / ShEx

Use-case independent

Open Issues

- (Map)VOWL or UML or … ?
- User evaluation graphical representation
- Representation large data shapes
  - Workspaces
  - Detail levels

Features as starting point for visual data shape editors

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