

Patterns & Shortcuts

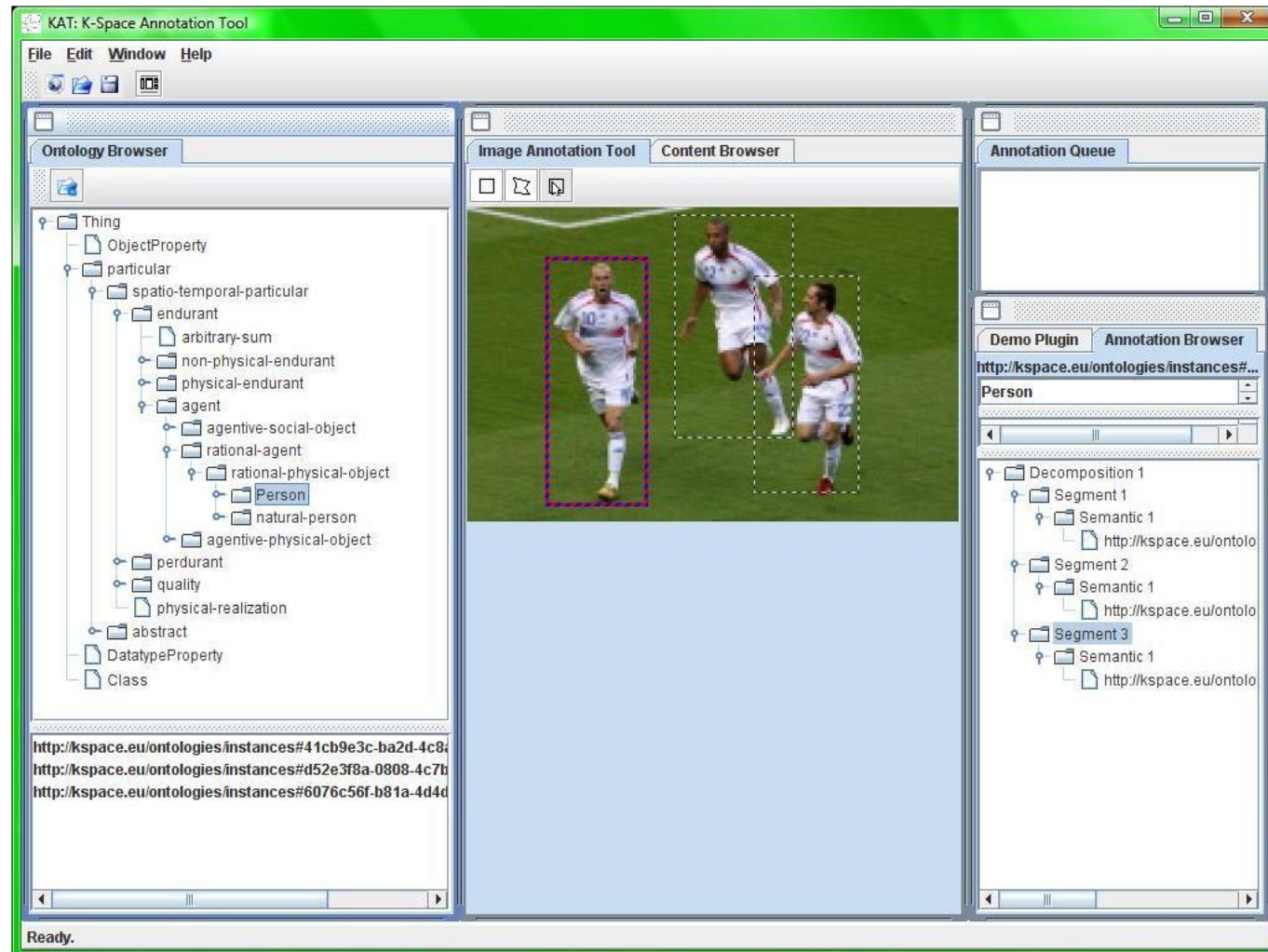
Miroslav Vacura, Vojtěch Svátek

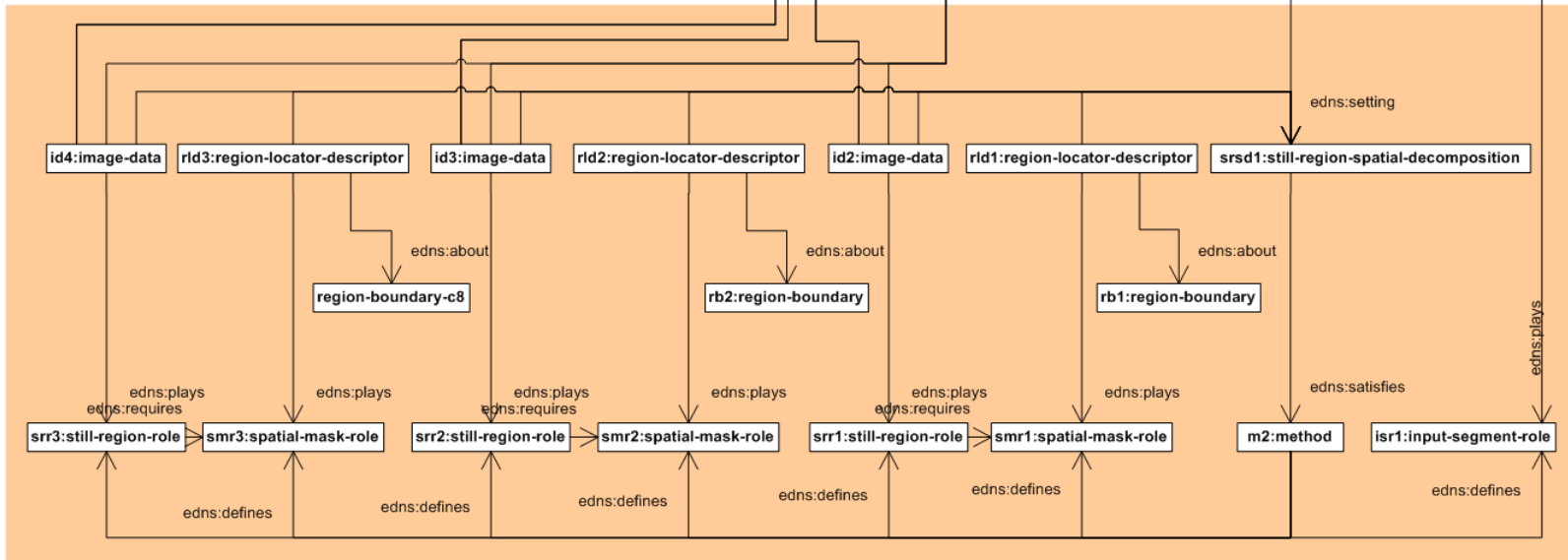
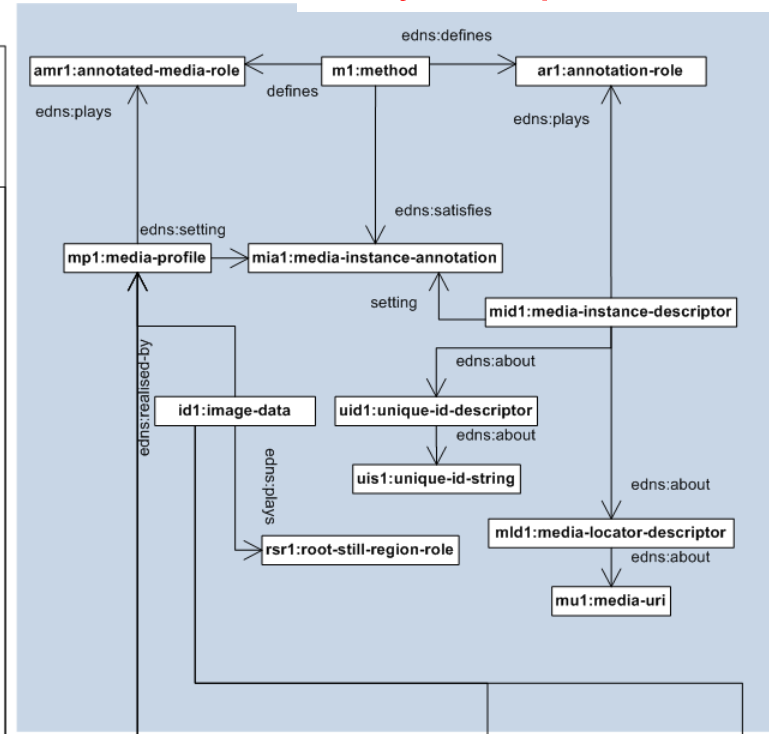
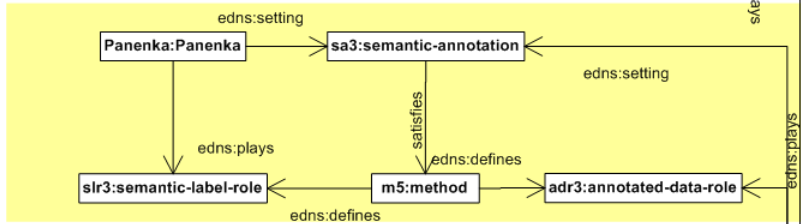
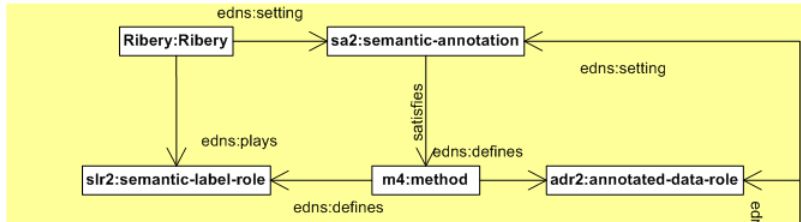
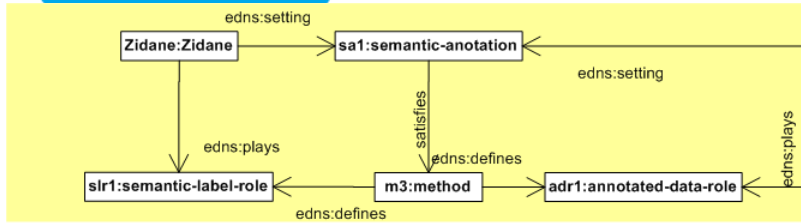
Knowledge Engineering Group (KEG)
University of Economics, Prague (UEP)

Motivation

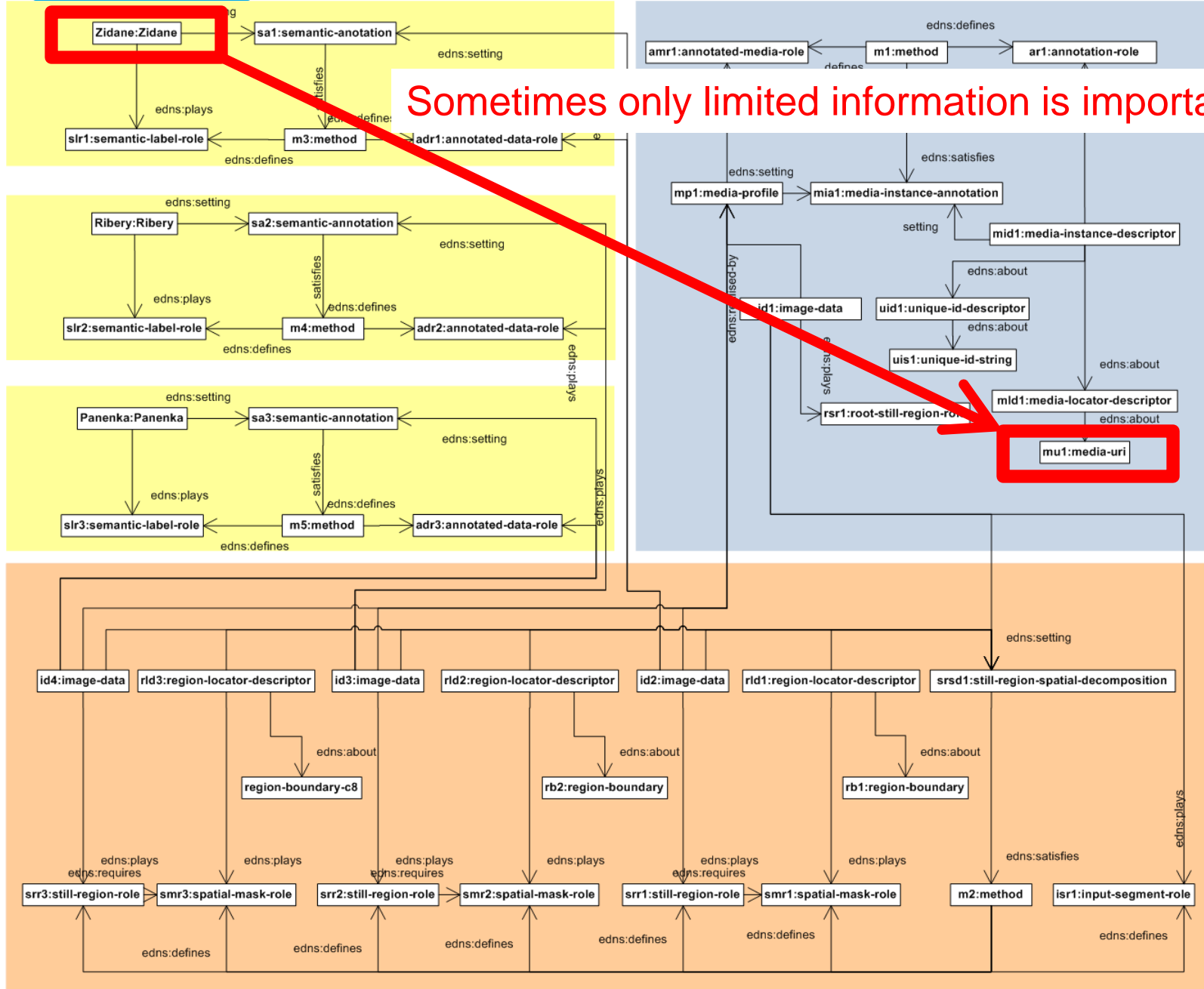
- COMM - Core Ontology for Multimedia
- Too complex for some use-cases.
- **Example:** annotation of multimedia data using KAT annotation tool produces complex RDF graph a

KAT annotation tool produces COMM data





Sometimes only limited information is important

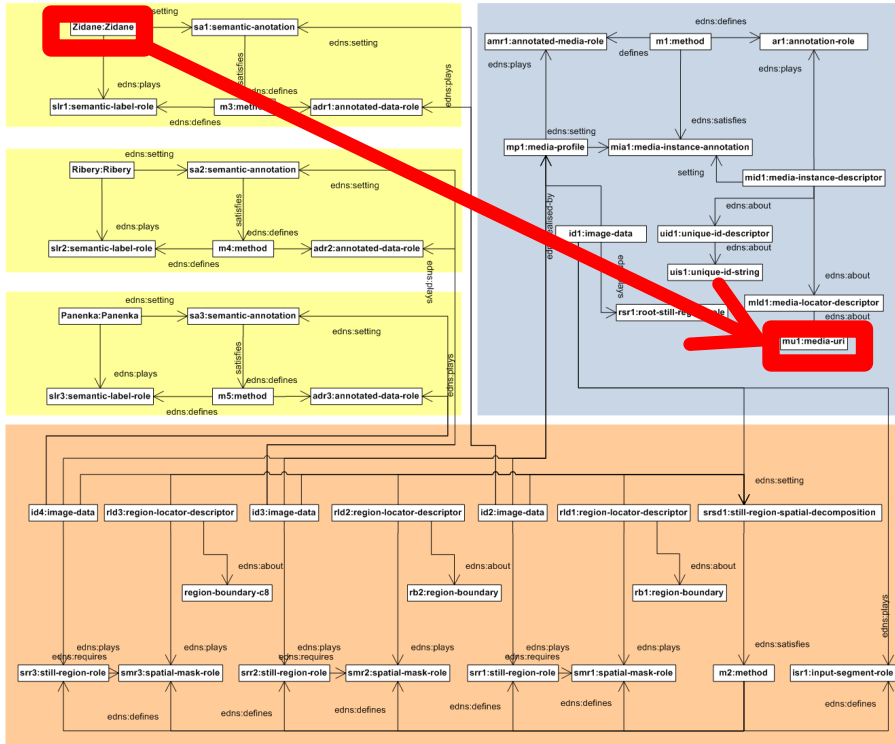




Zidane

URL: <http://www.example.com/footbal.jpg>

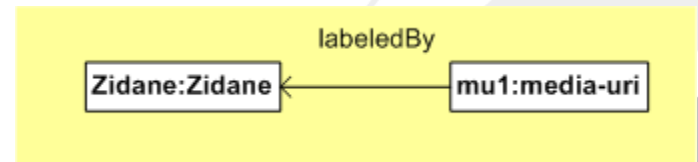
- For some applications – we only want to link URL and Semantic label.



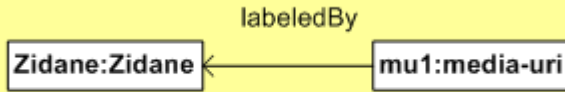
- Identification of shortcuts important for simple applications.

- Definitions of transformation patterns.

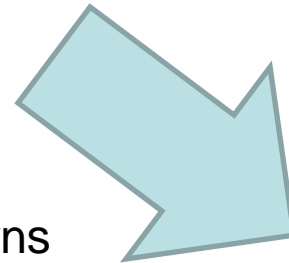
- Contraction of complex graph to simplified shortcut RDF graph.



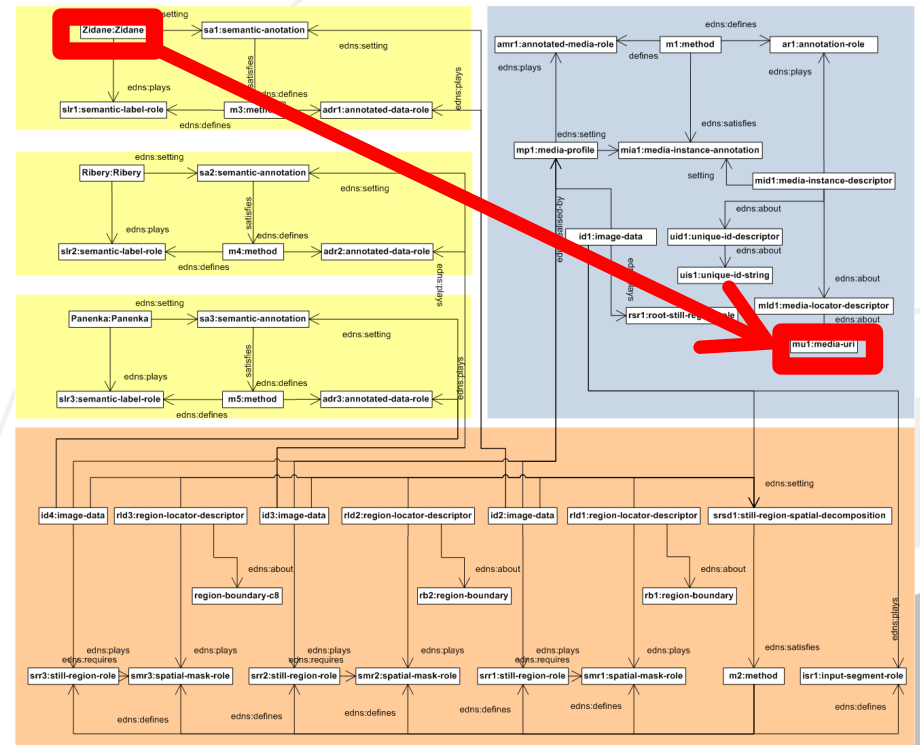
- Identification simple shortcuts



- Application of transformation patterns

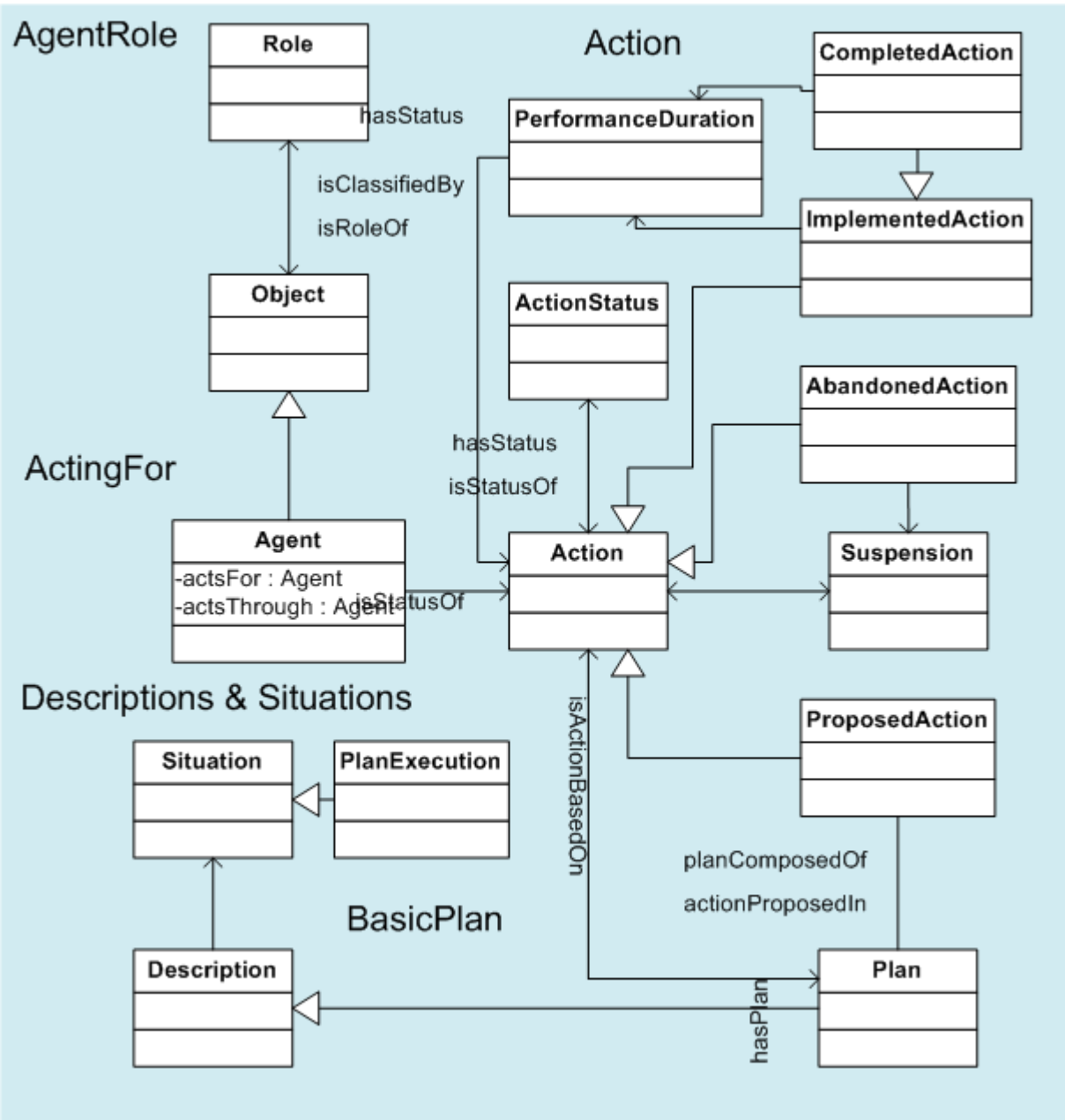


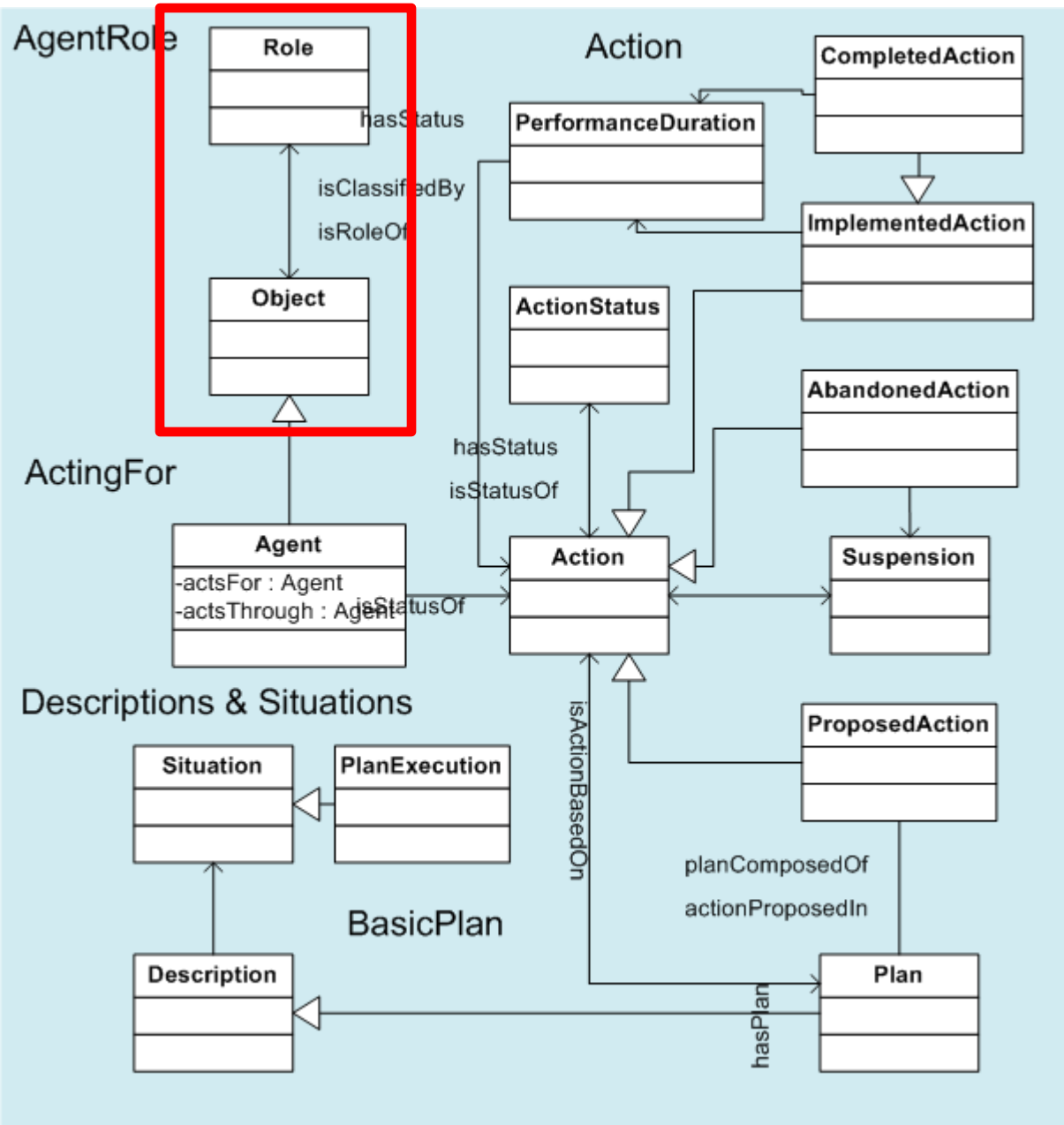
- Expansion to full complex graph

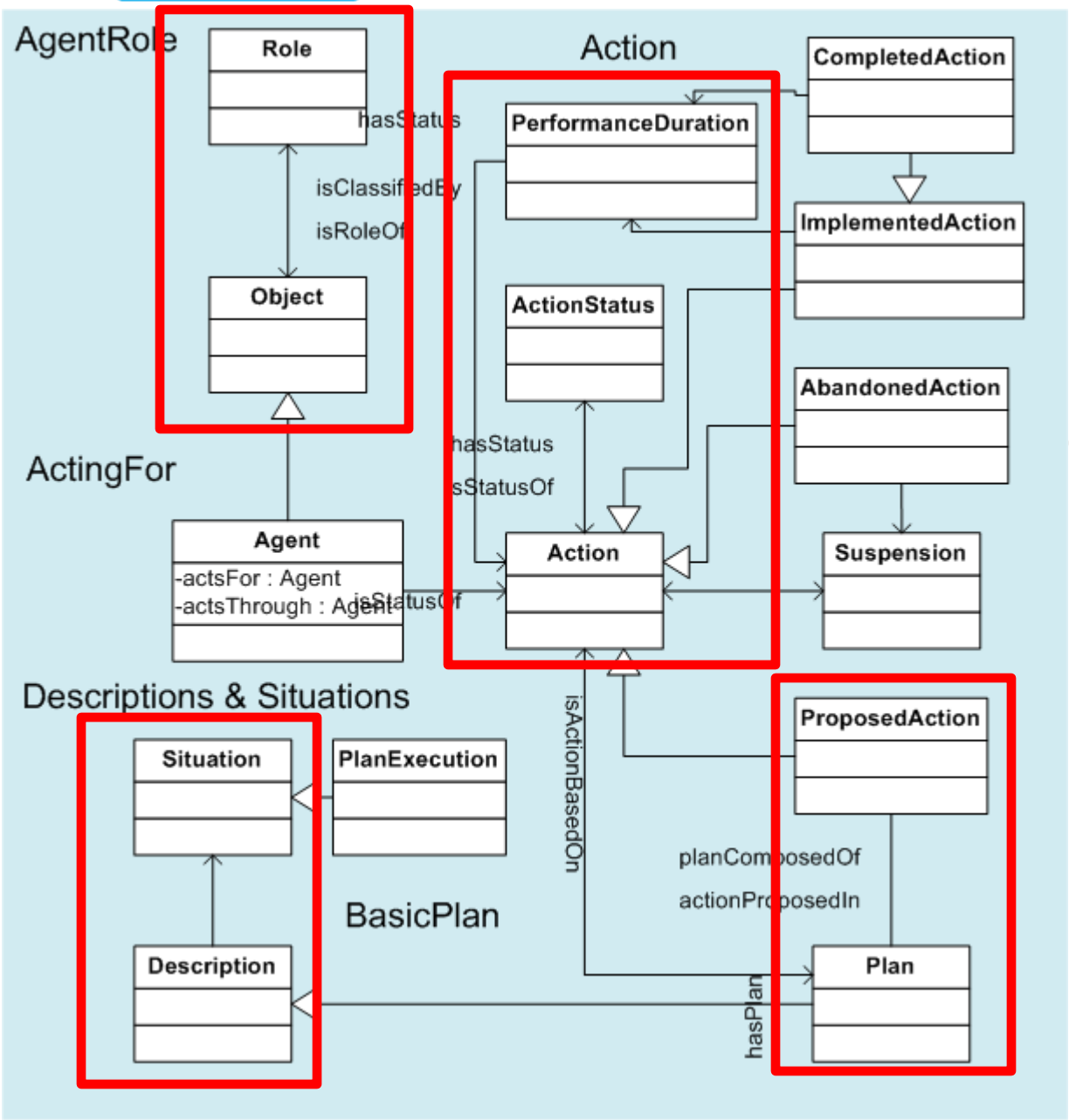


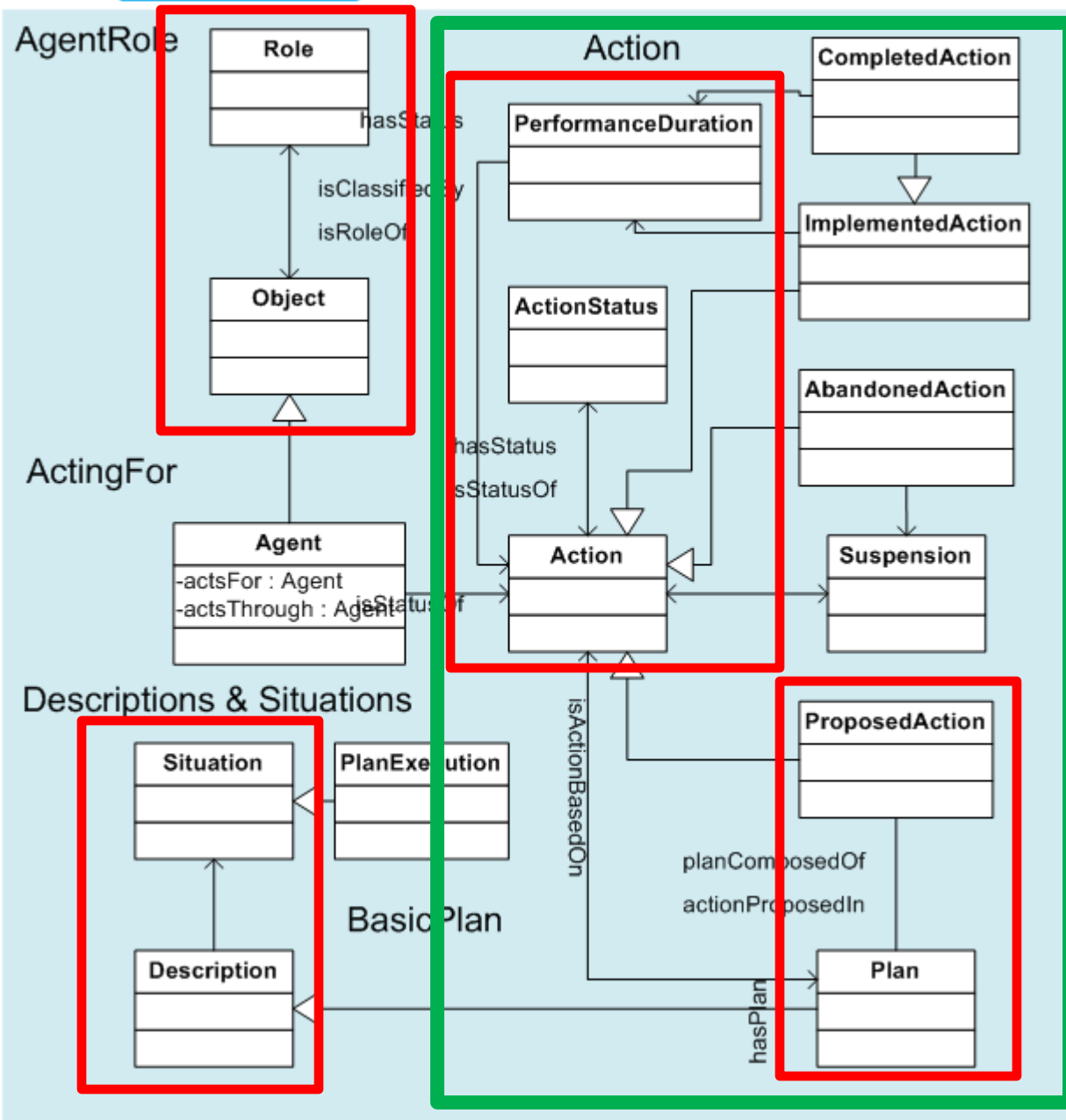
Similar approach can be applied in case of Ontology Design Patterns

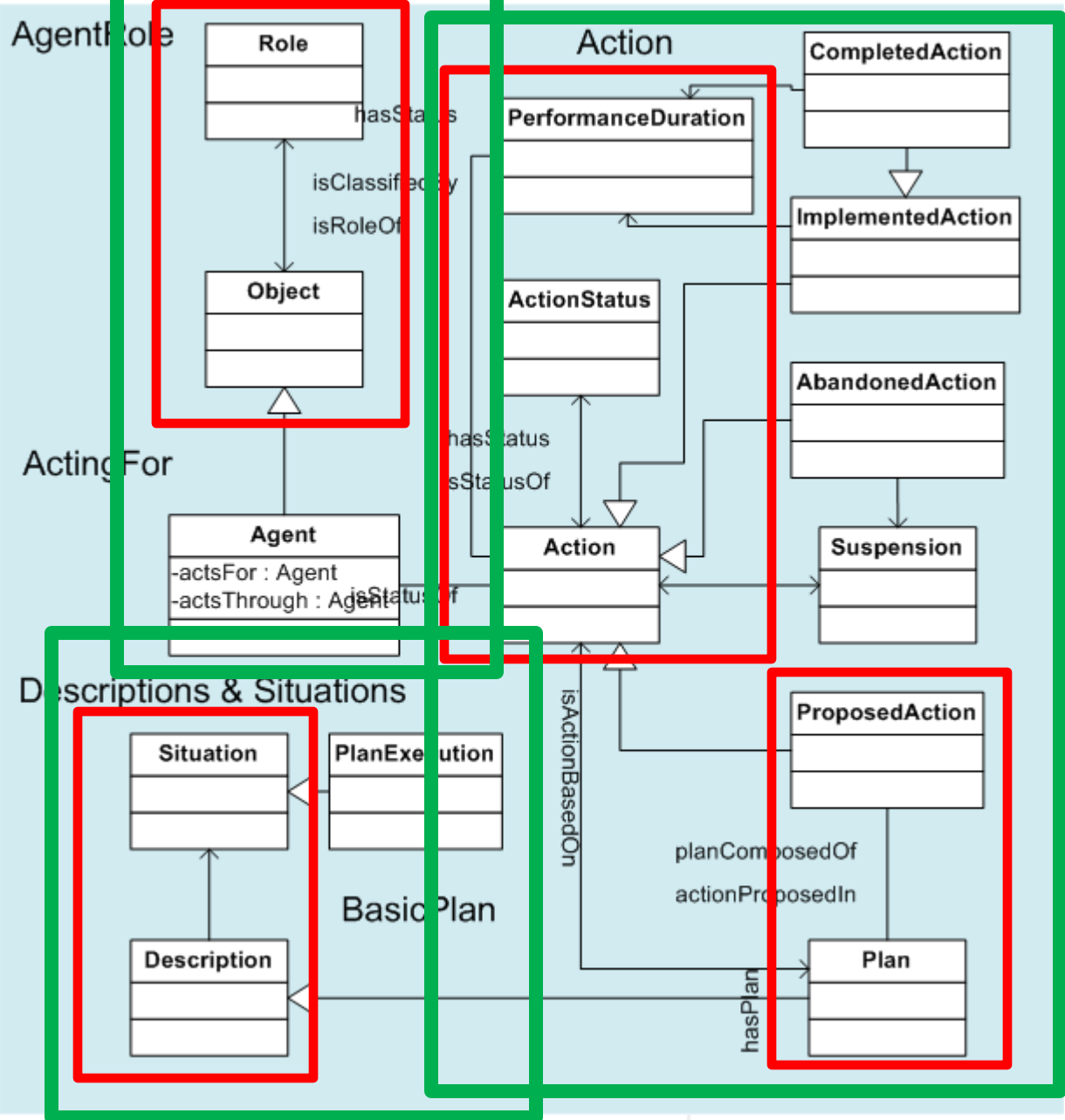
- We start with some patterns from:
ontologydesignpatterns.org

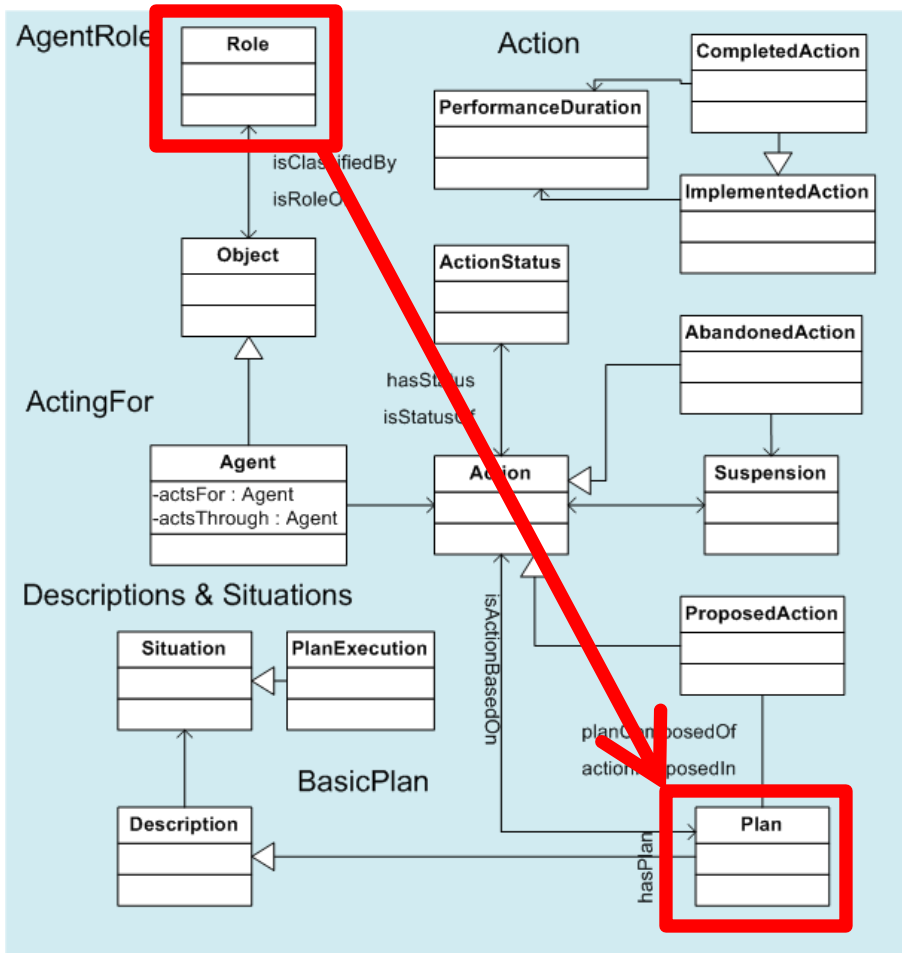








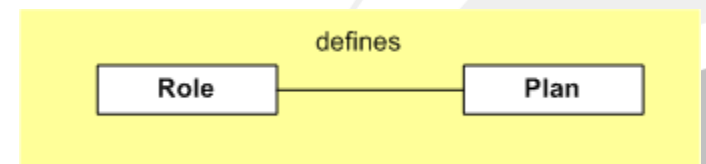




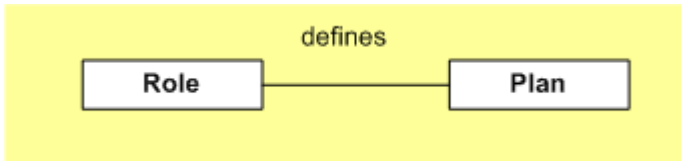
- We encounter complex amalgamation of design patterns

- Definition of transformation patterns.

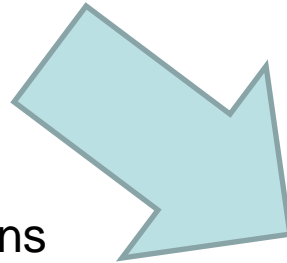
- Contraction of complex graph to simplified shortcut RDF graph.



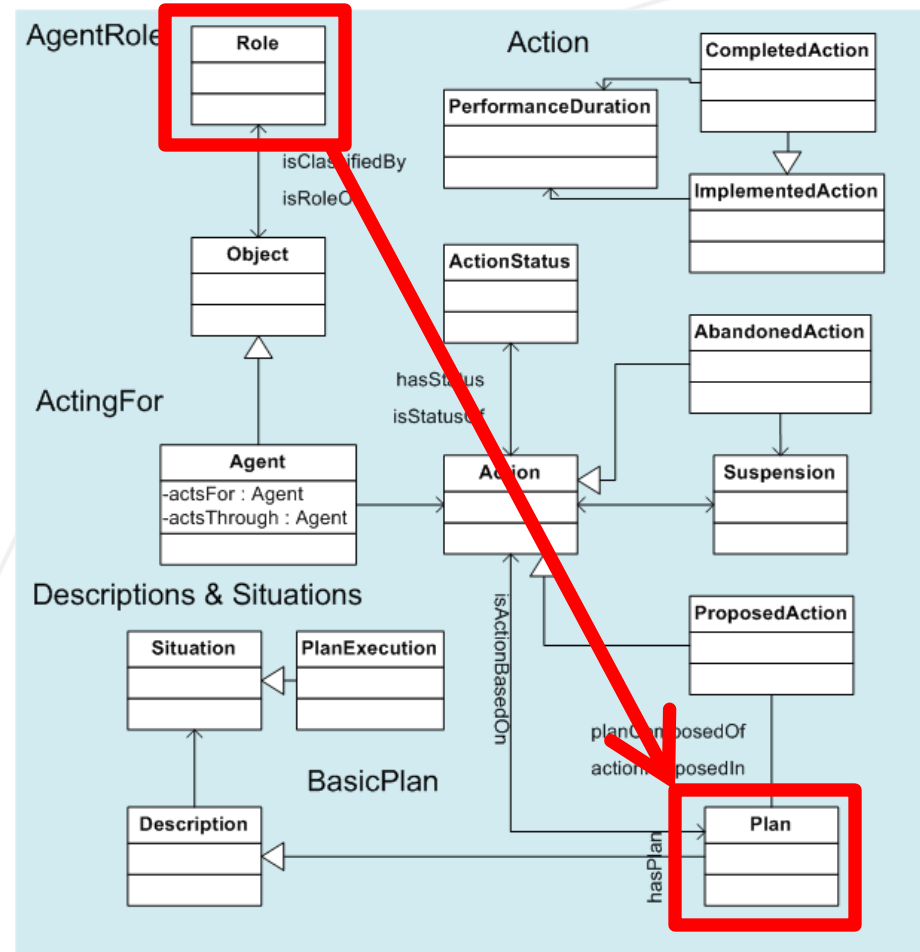
- Identification simple shortcuts



- Application of transformation patterns



- Expansion to full complex graph



Relations between ODPs

- Some defined on ontologydesignpatterns.org:
 - ODP_1 generalisation of ODP_2
 - ODP_2 specialisation of ODP_1
 - ODP_2 related to ODP_1
- What are possible logical relations between two patterns?
- **Ontology** of ODPs

Transformations of ODPs

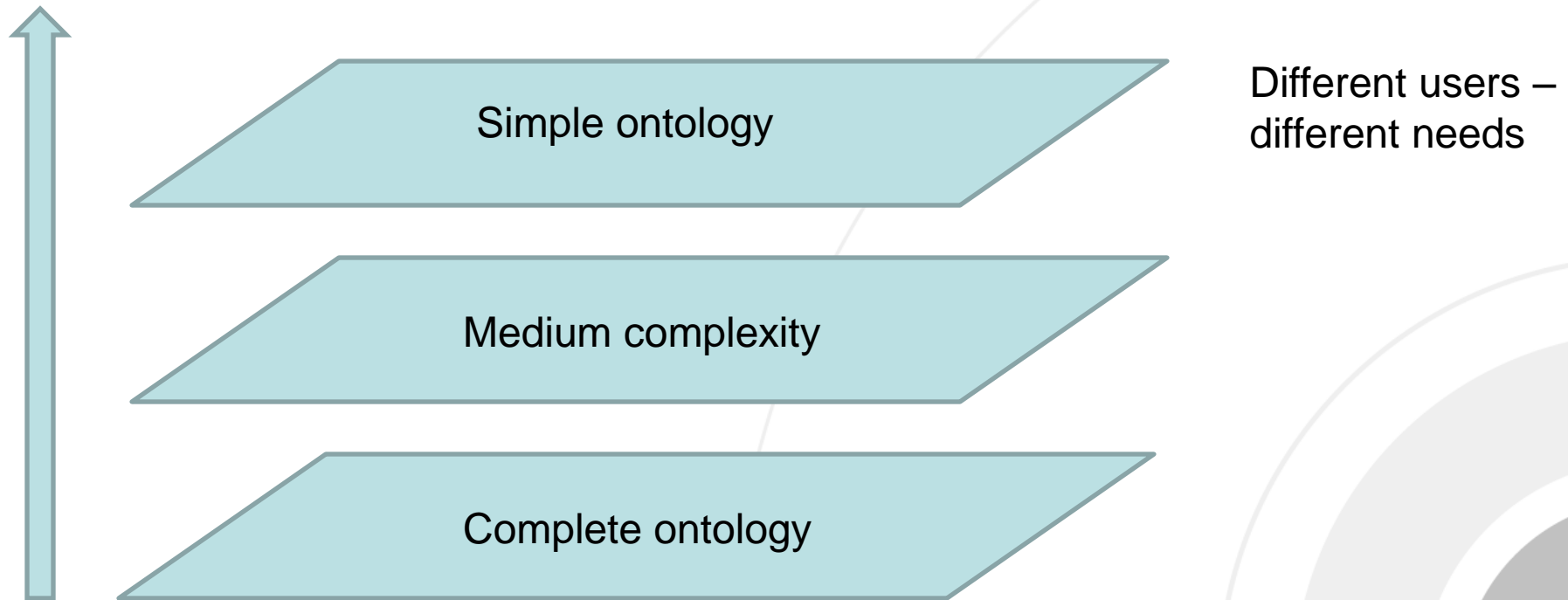
- ODP_1 generalisation/specialisation of ODP_2
- ODP_2 related to ODP_1
 - We can define **transformation pattern** between ODP_1 and ODP_2 .

Application Use-Case

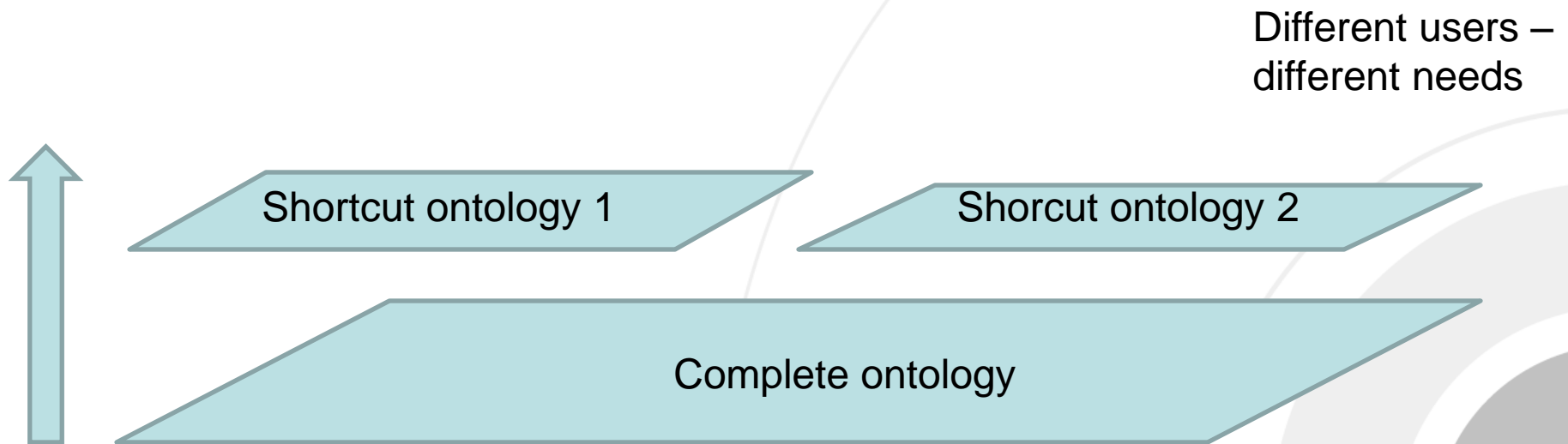


- (Semi) automatic tool that analyses OWL ontology, detects **simple** ODP_1 and suggests enhancing ontology to **complex** ODP_2 by applying transformation pattern.
- (Semi) automatic tool that analyses OWL ontology, **complex** ODP_1 and suggests some usefull **simple shortcut** ODP_2 by applying transformation pattern.

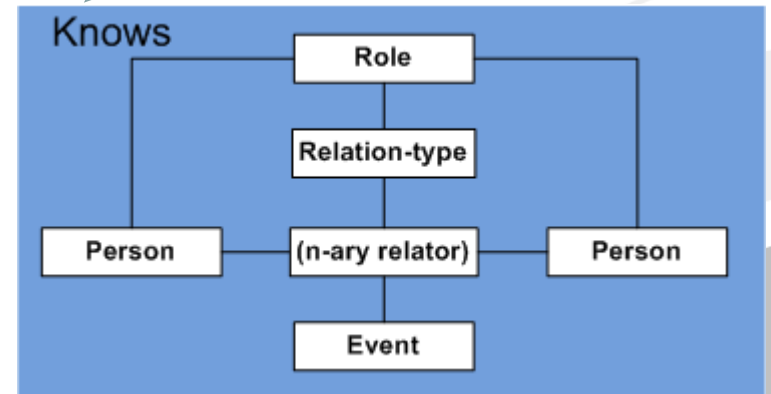
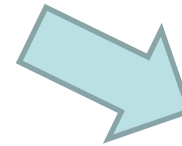
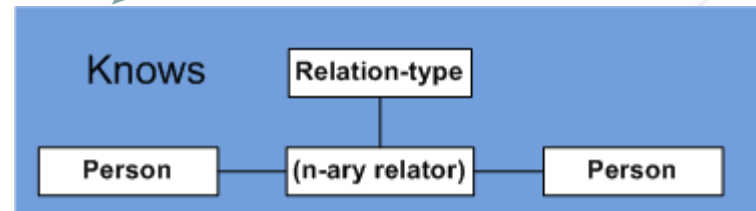
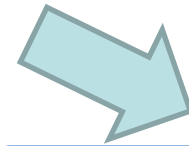
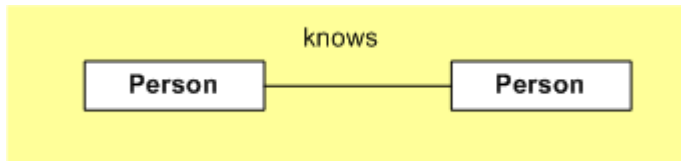
Single ontology – multiple complexity layers

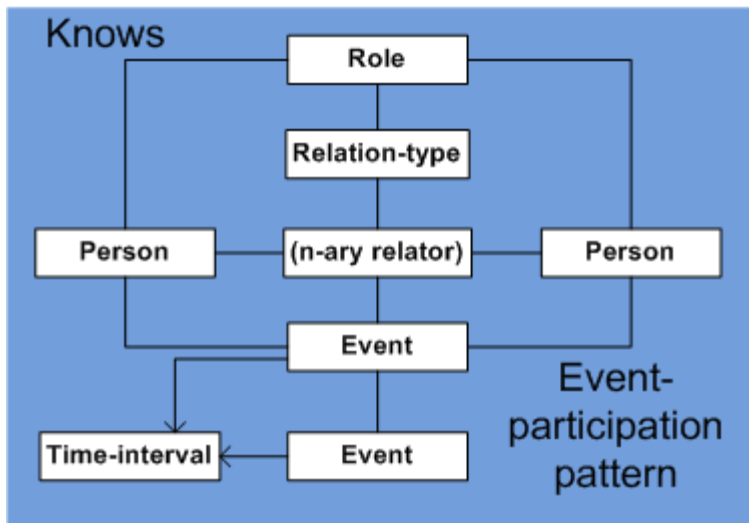
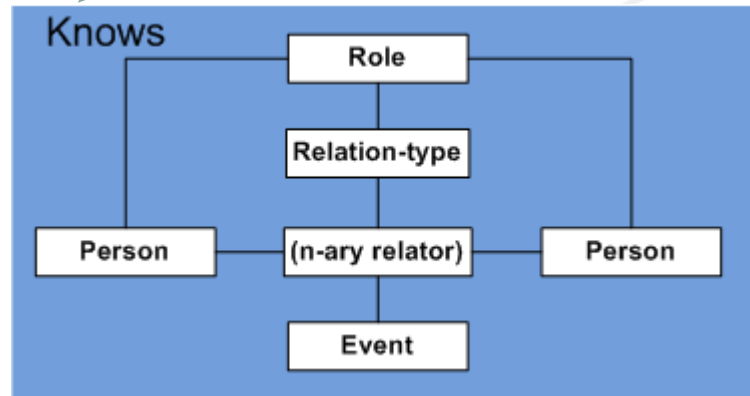
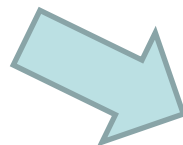
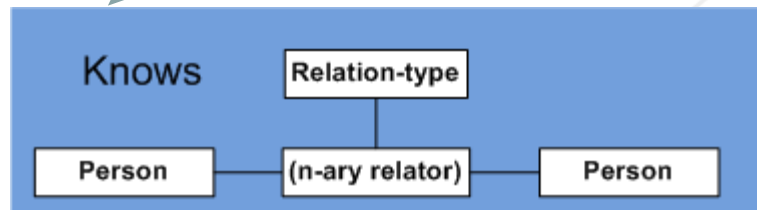
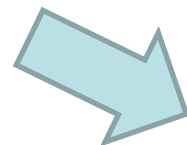
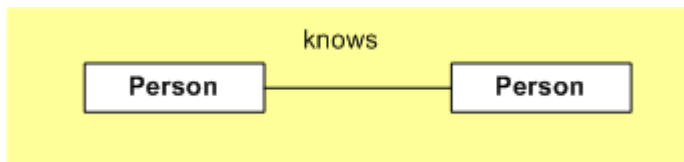


Single ontology – multiple complexity layers



Linked data example







THE END



NADPIS VNITŘNÍ STRANY PSANÝ VERZÁLKAMI

- Odrážka číslo 1
- Odrážka číslo 2 se **zvýrazněním**
- Odrážka číslo 3 bez zvýraznění
- Odrážka 4, která má **zvýraznění** a je dlouhá tak, že vychází na 2 řádky
- Klasická odrážka číslo 5
- Poslední odrážka

NADPIS VNITŘNÍ STRANY

- Jiný druh odrážky
 - Jiný druh **odrážky**
 - Jiný druh odrážky vd
 - Jiný **druh** odrážky
 - Jiný druh odrážky
- Jiný druh odrážky
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