

The I-ADOPT Framework

[RDA Interoperable Descriptions of Observable Property Terminology
WG \(I-ADOPT WG\)](#)

Core members:

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Anusuryia Devaraju, CSIRO, AU

Maria Stoica, University of Colorado, US

Sirko Schindler, German Aerospace Center, DE

Alison Pamment, Centre for Environmental Data Analysis, UK

Created by



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The I-ADOPT Framework

A FAIR and Systematic Way to Represent Variables

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I-ADOPT Framework – A Semantic Broker

I-ADOPT provides a **standardized, more interoperable approach** for the **description of variables** by:

- Enabling mappings to a common representation
- Adding rich human & machine-readable descriptions
- Using qualified, language independent, references using object properties
- Specifying the role a concept plays within the variable description

With **no need to change existing** terms and structures

The crucial role of metadata

Variables are used to describe which properties are observed and represented in data, but:

- Often are poorly described with free text
- Hard to understand, compare and reuse

I-ADOPT adds machine-readable metadata to address this:

- Metadata: informational context to data
- Metadata is key to making your data FAIR
- Metadata itself also needs to be FAIR
- Requires persistent identifiers pointing to terminologies using web standards

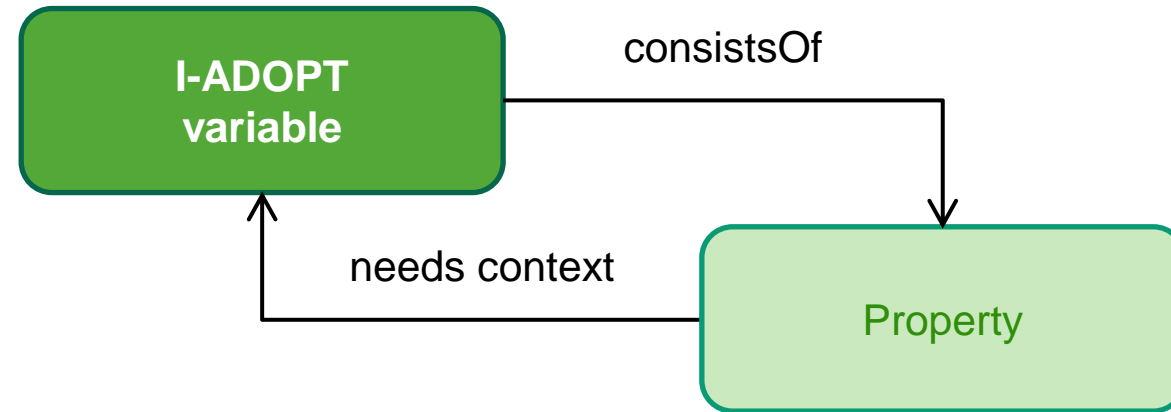
RDA I-ADOPT recommendations

1. Descriptions should be human and machine-readable
2. Descriptions should be explicit and sufficient
3. Use of semantic artefacts
4. Use of I-ADOPT ontology
5. Reuse of I-ADOPT aligned terminology

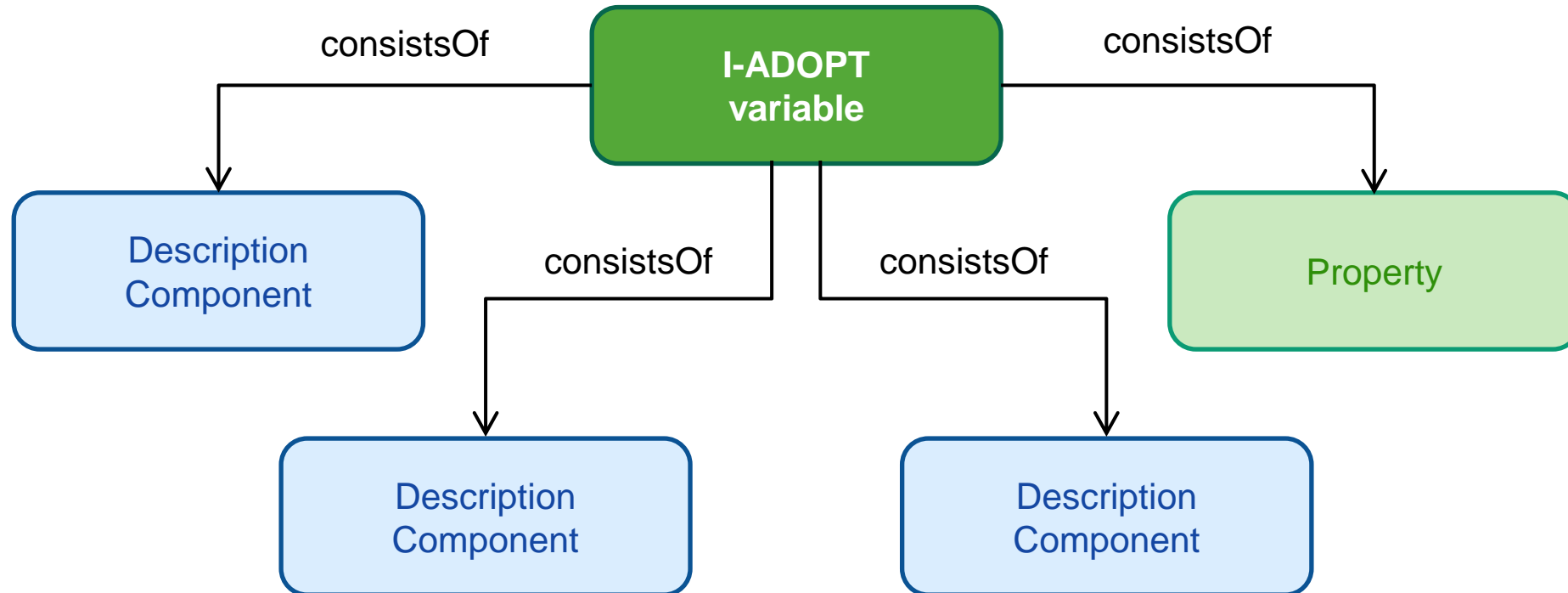


[DOI: 10.15497/RDA00071](https://doi.org/10.15497/RDA00071)

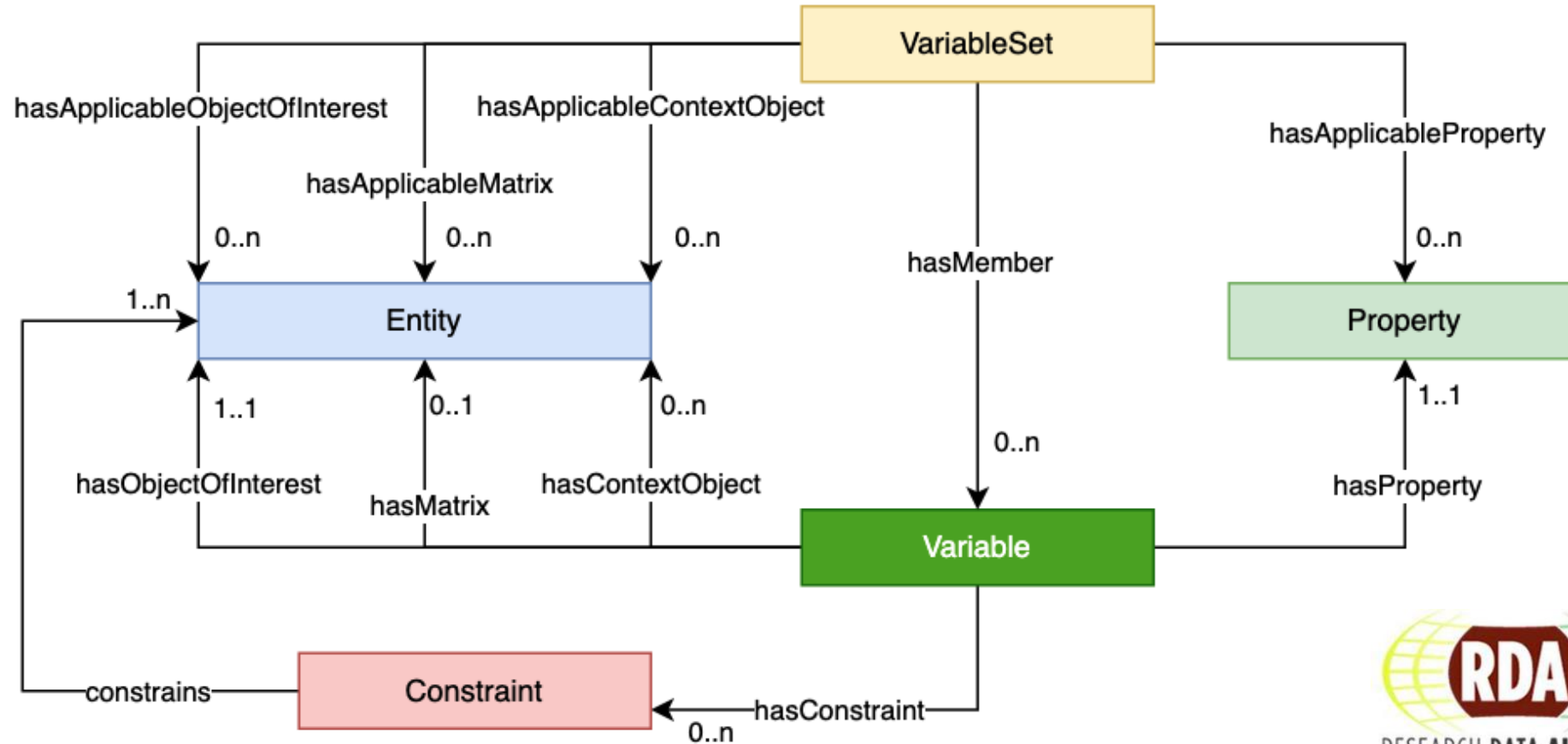
Contextualised properties -> I-ADOPT variables



I-ADOPT variable consists of various description components

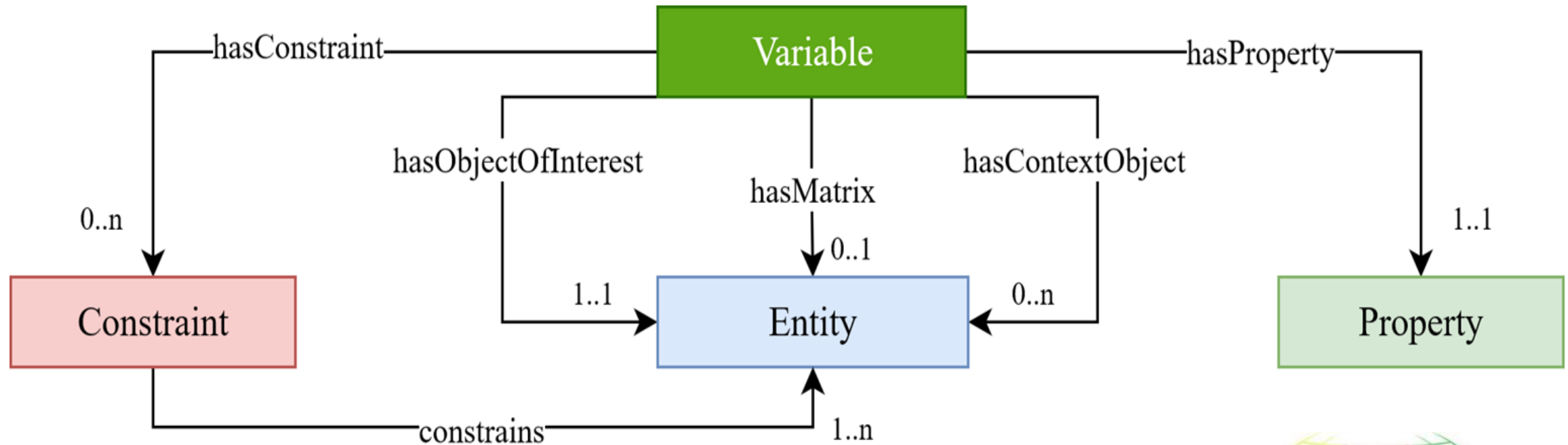


The I-ADOPT Ontology



<https://w3id.org/iadopt>

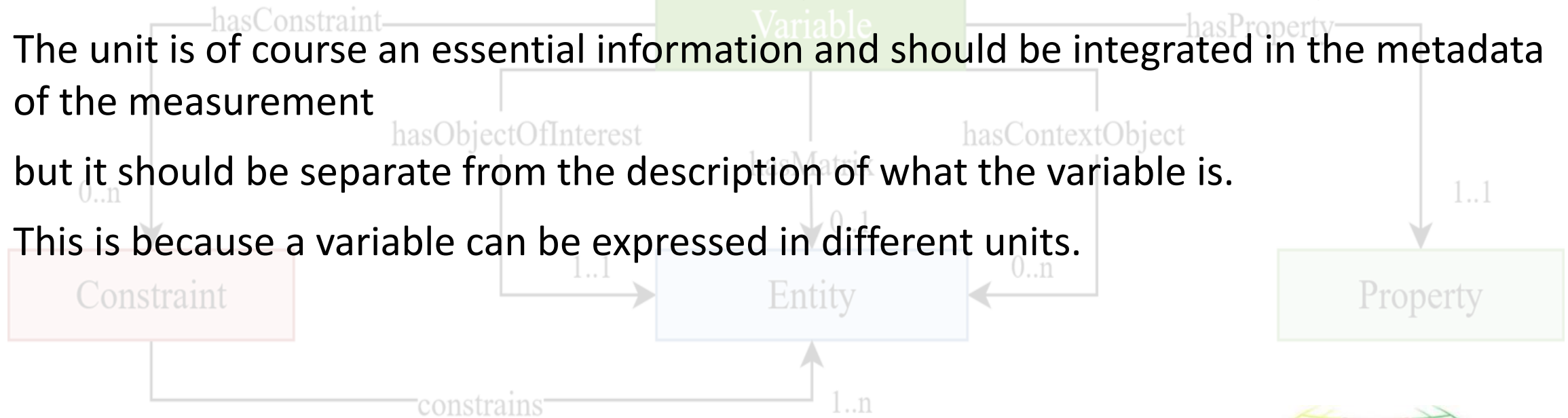
The I-ADOPT Ontology – core model



<https://w3id.org/iadopt>

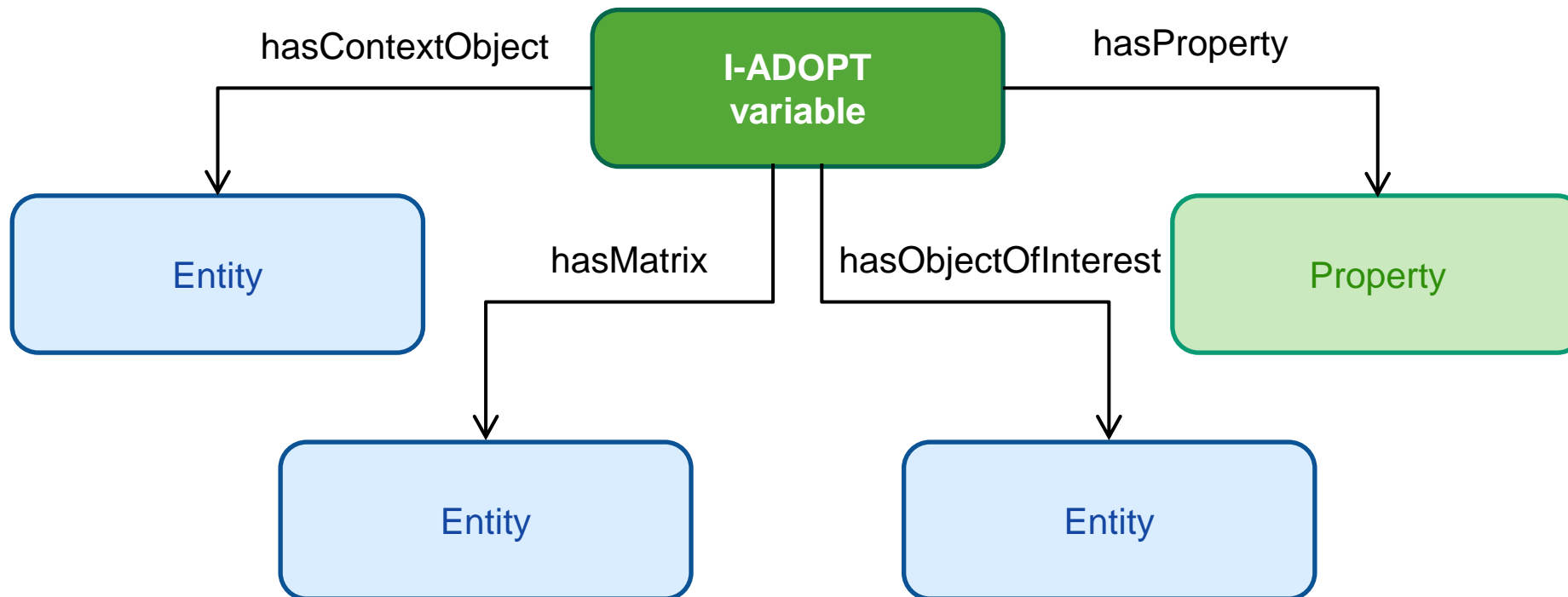
The I-ADOPT Ontology

- The unit of measure is not included as a component of the I-ADOPT description
- The unit is of course an essential information and should be integrated in the metadata of the measurement
- but it should be separate from the description of what the variable is.
- This is because a variable can be expressed in different units.

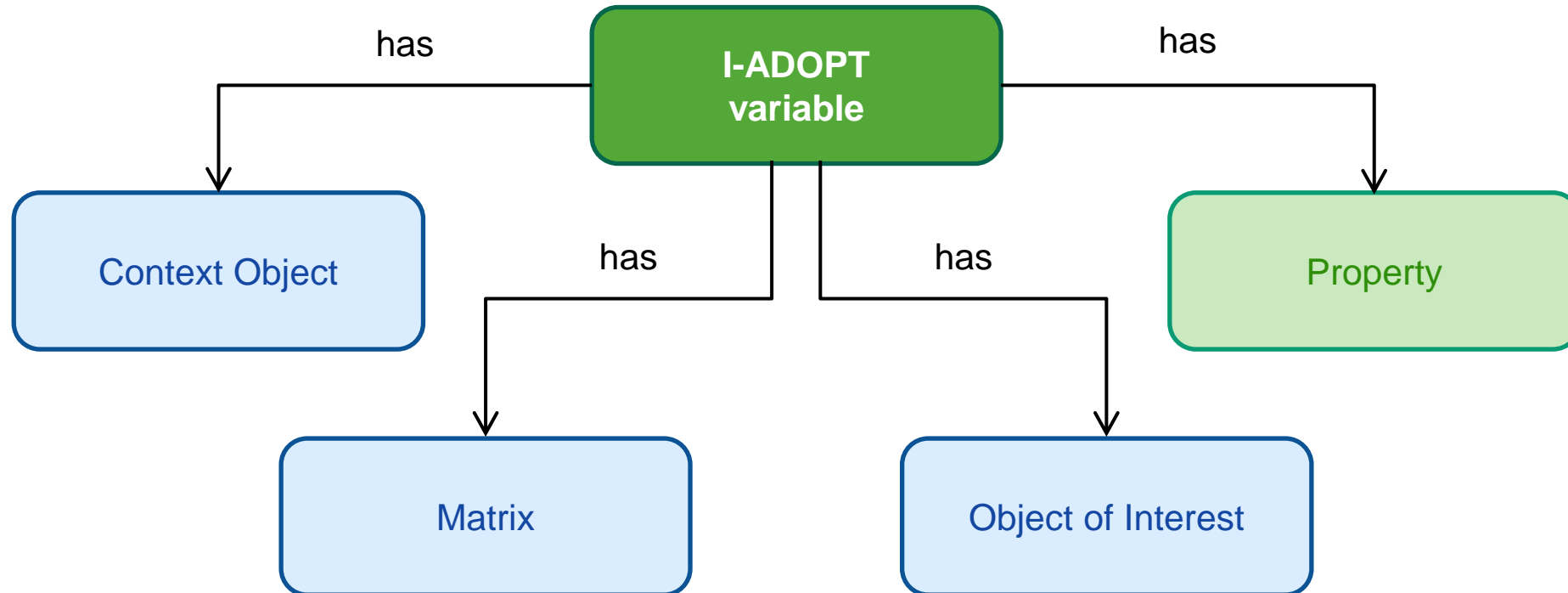


<https://w3id.org/iadopt>

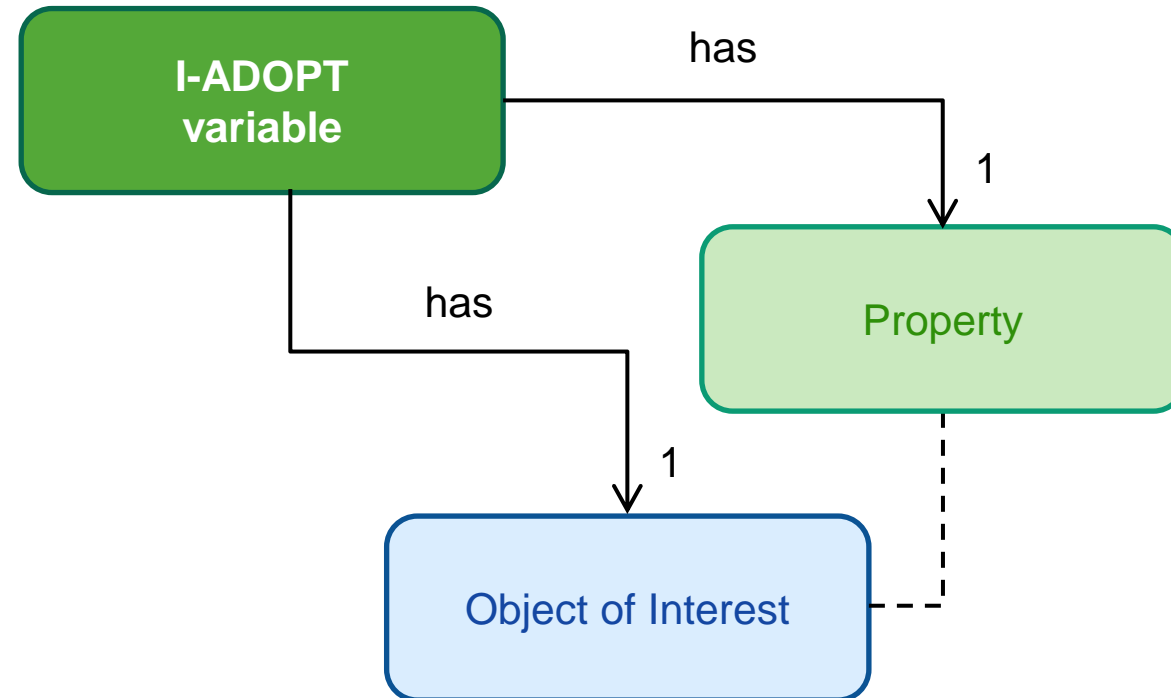
I-ADOPT ontology explained



I-ADOPT ontology simplified explanation

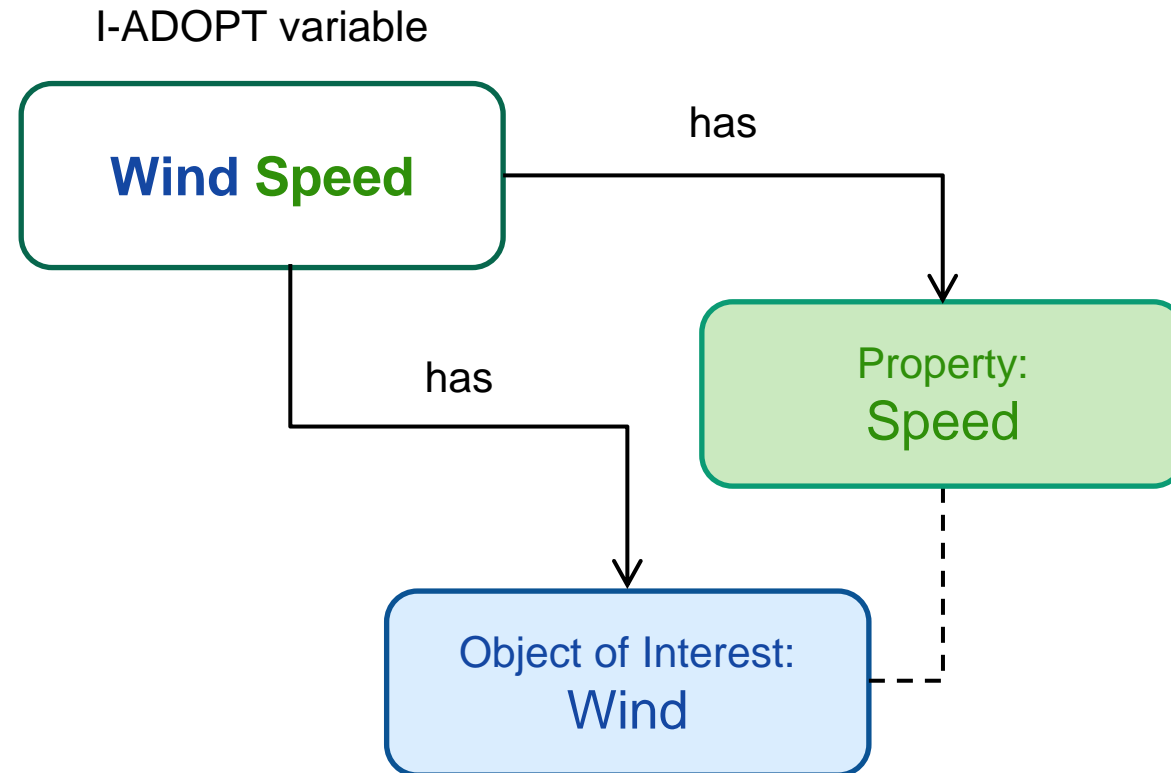


I-ADOPT ontology simplified explanation – minimal description

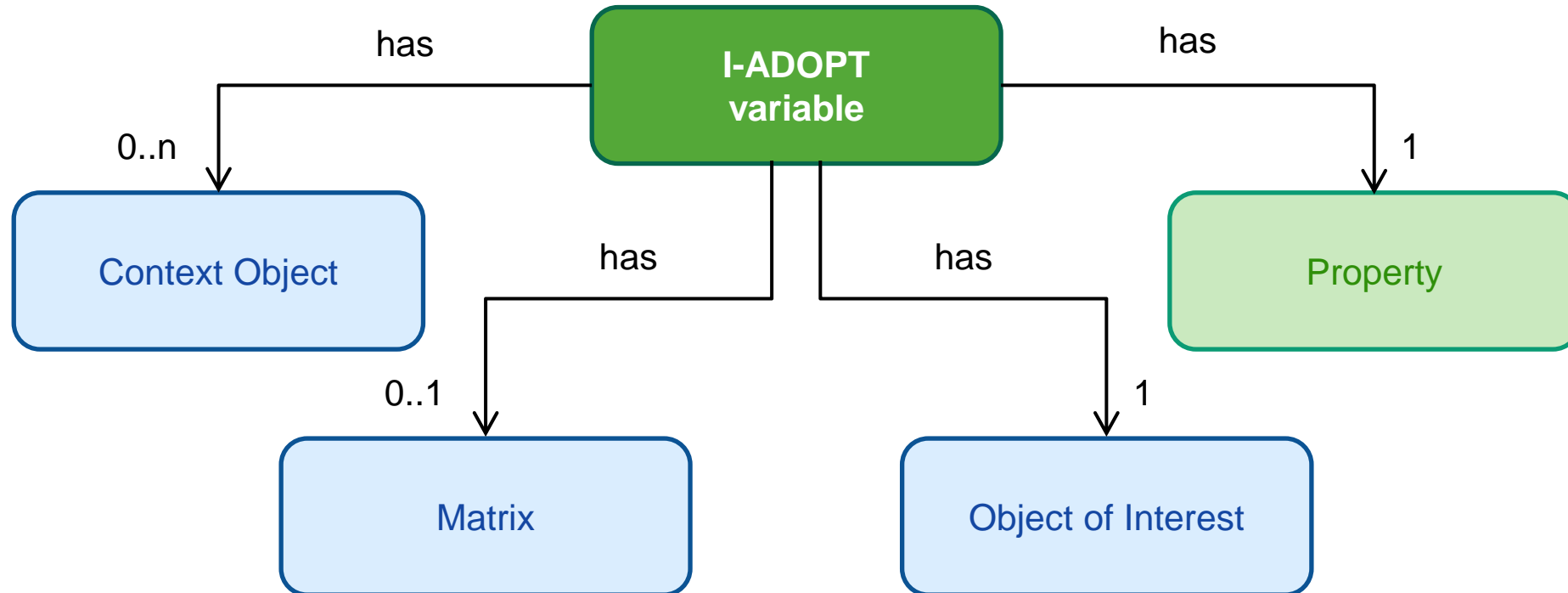


I-ADOPT variable – minimal description

EXAMPLE

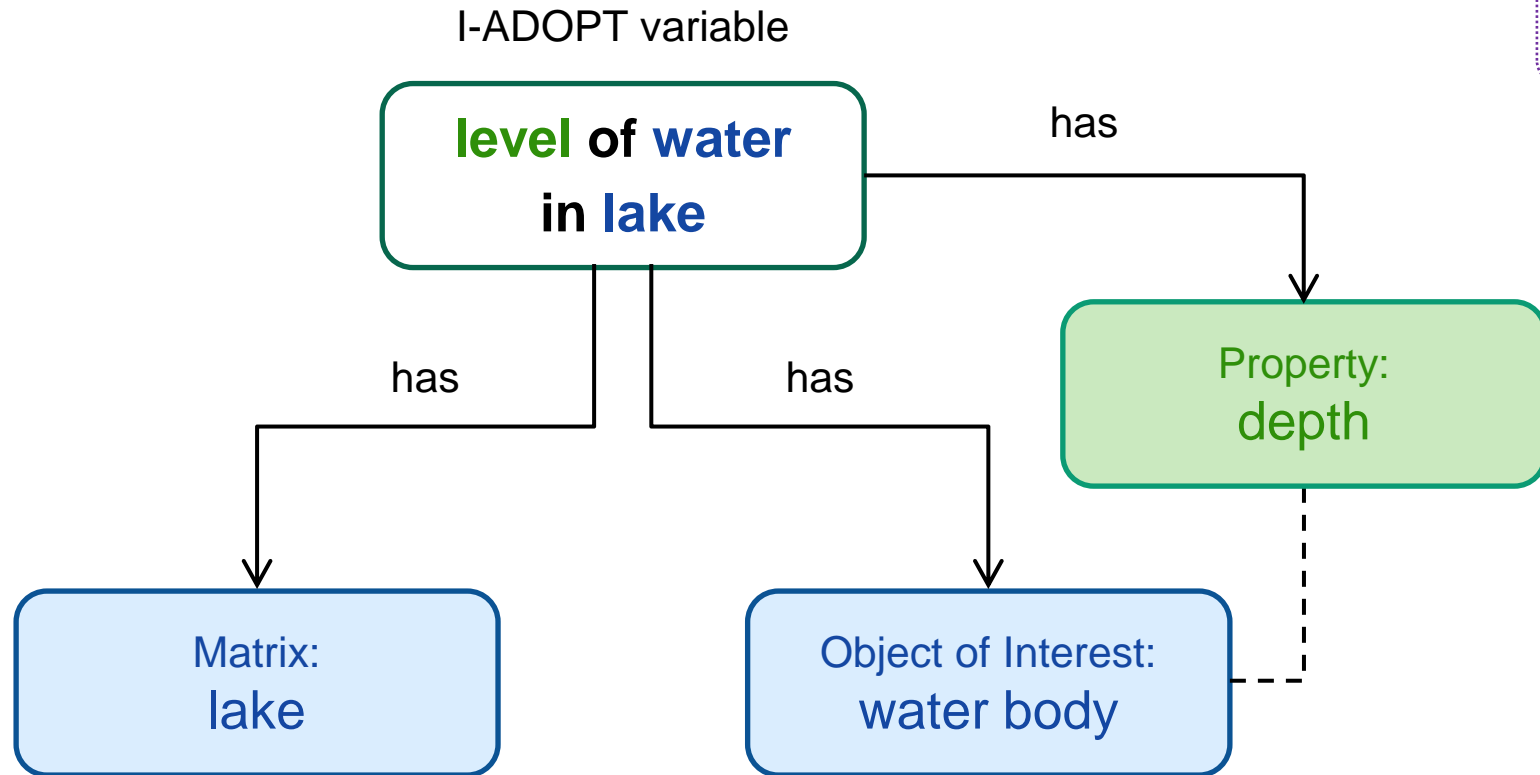


I-ADOPT ontology simplified explanation – extended description



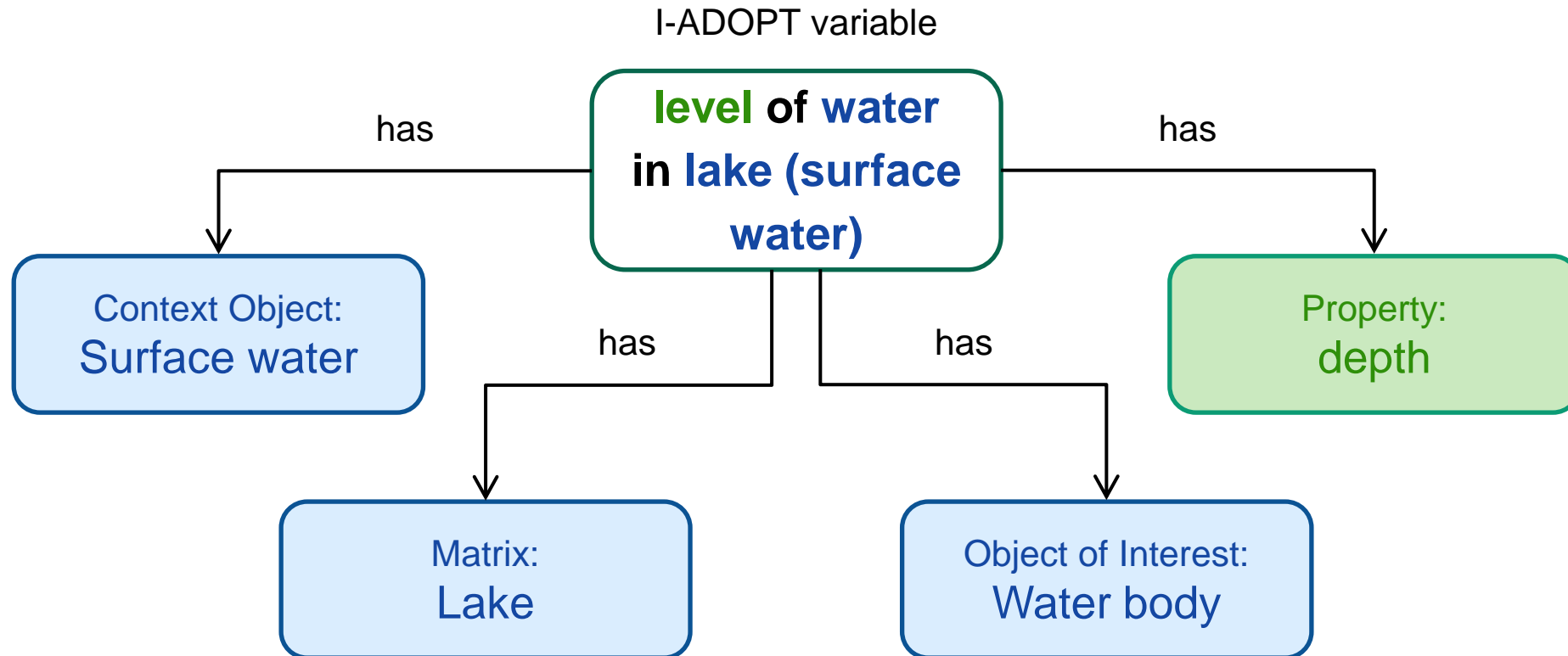
I-ADOPT variable description

EXAMPLE

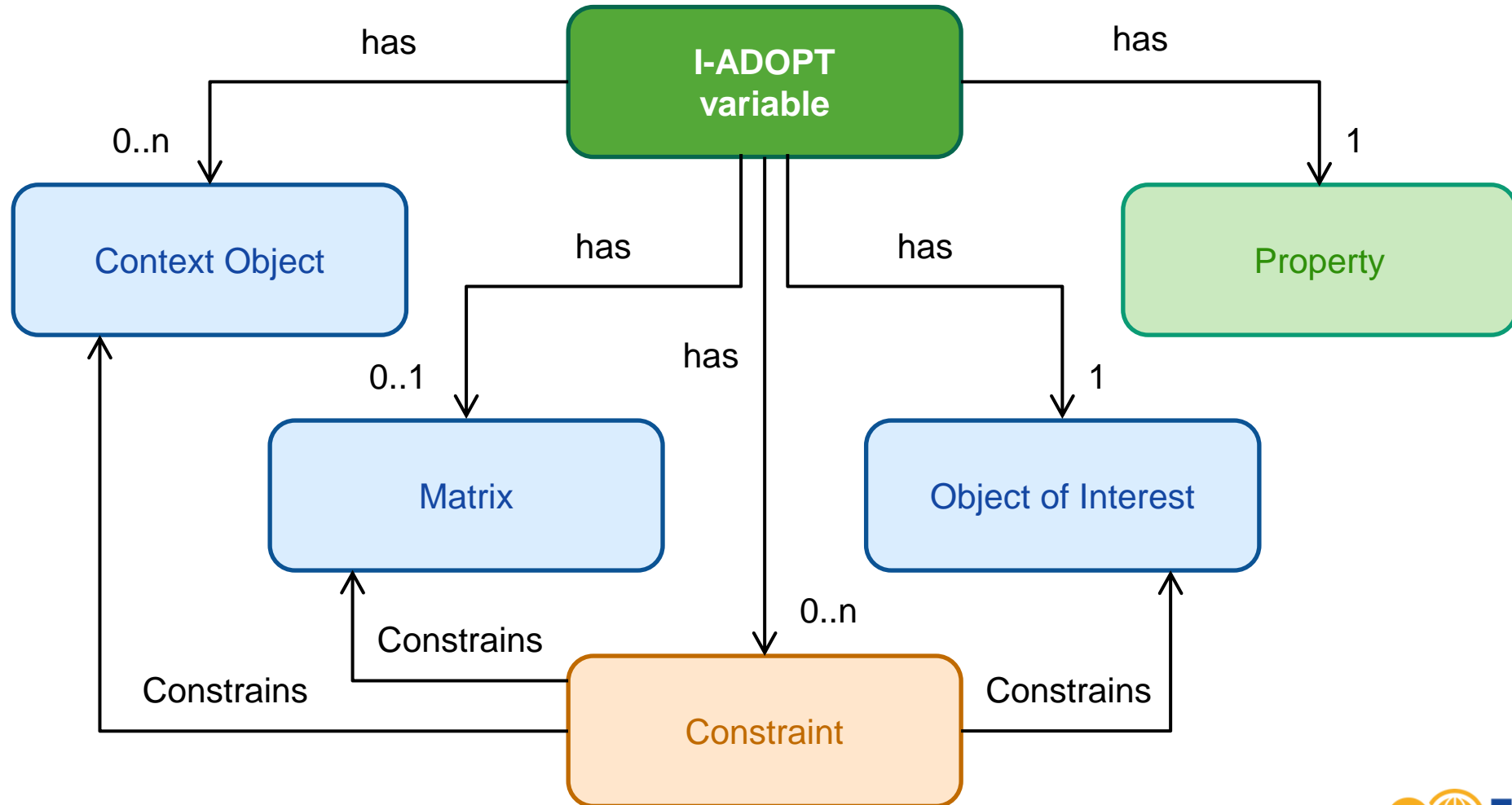


I-ADOPT variable description

EXAMPLE

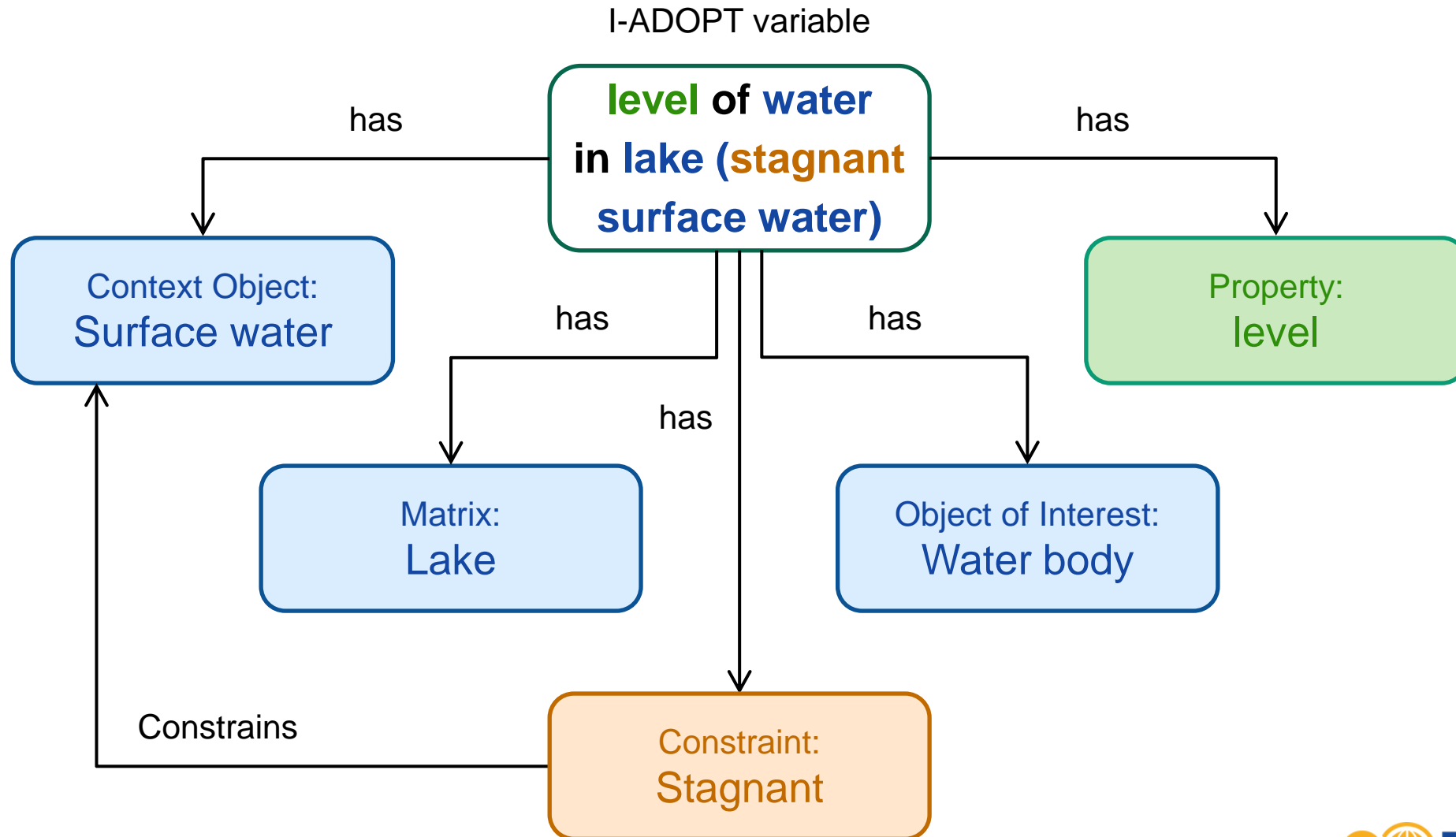


I-ADOPT (simplified) with constraints

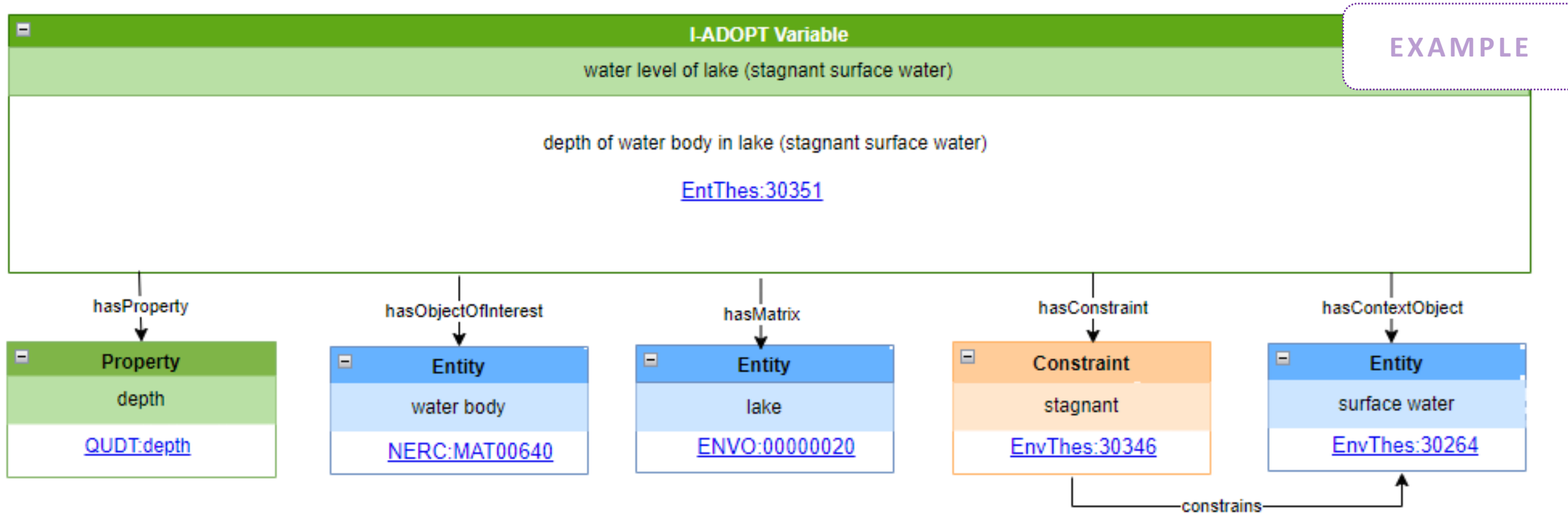


I-ADOPT variable description

EXAMPLE



I-ADOPT example: Water level of stagnant surface water



I-ADOPT example: Water level of stagnant surface water

Represented in ttl (turtle), see full definition [here](#):

EXAMPLE

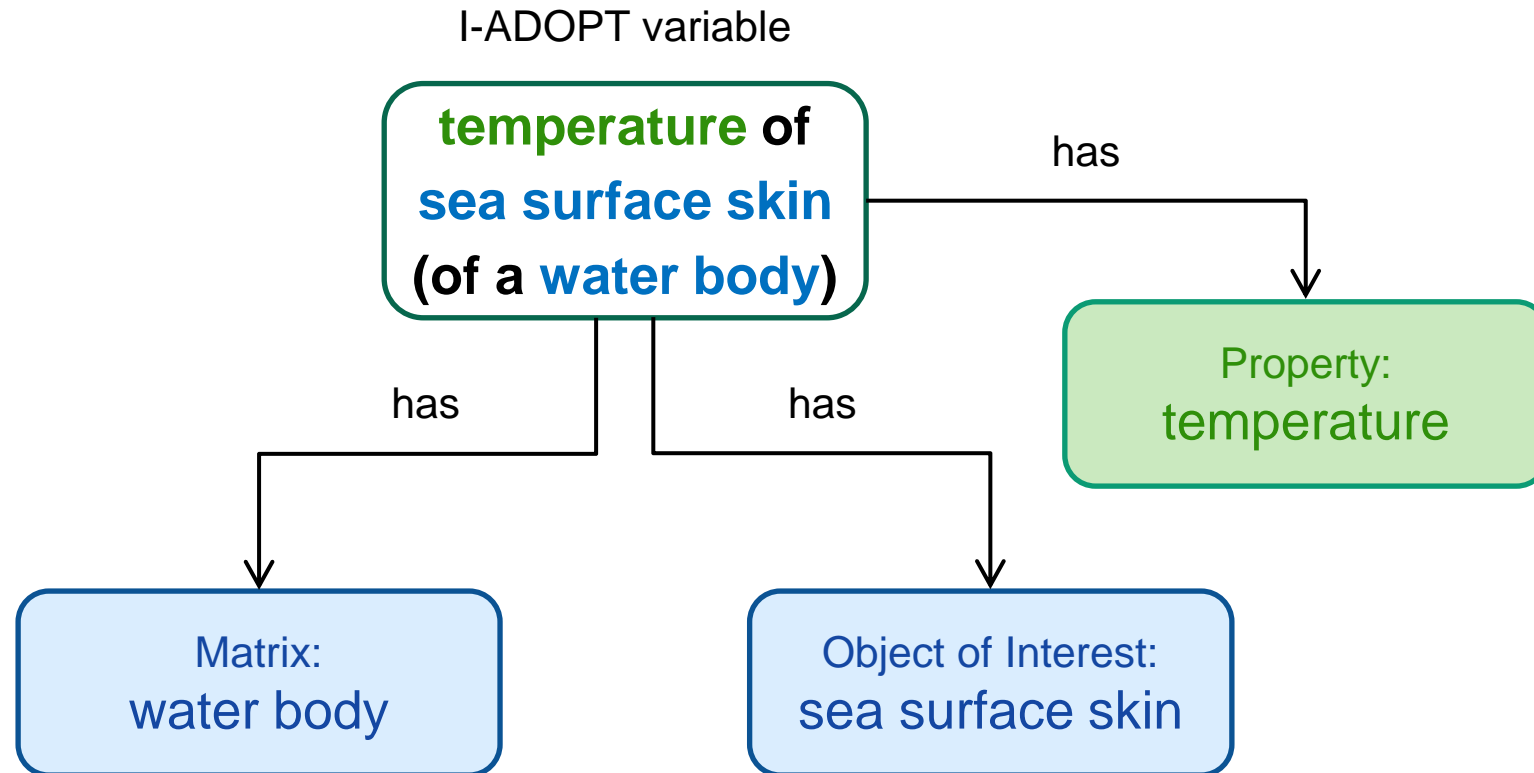
```
@prefix envthes: <http://vocabs.lter-europe.net/EnvThes/> .
@prefix iadopt: <https://w3id.org/iadopt/ont/> .
@prefix skos: <http://www.w3.org/2004/02/skos/core#> .

envthes:30351
  a skos:Concept, iadopt:Variable ;
  skos:prefLabel "water level in lake, stagnant surface water"@en ;
  skos:altLabel "depth of water body in lake"@en ;
  skos:definition "depth of water body in lake, stagnant surface water"@en ;
  iadopt:hasProperty <http://qudt.org/vocab/quantitykind/Depth> ;
  iadopt:hasObjectOfInterest <http://vocab.nerc.ac.uk/collection/S26/current/MAT00640/> ;
  iadopt:hasMatrix <http://purl.obolibrary.org/obo/ENVO_00000020> ;
  iadopt:hasContextObject envthes:30264 ;
  iadopt:hasConstraint envthes:30346 .

envthes:30346
  skos:prefLabel "stagnant"@en ;
  iadopt:constrains <http://vocab.nerc.ac.uk/collection/S26/current/MAT00640/> ;
  a iadopt:Constraint, skos:Concept .
```

I-ADOPT variable description

EXAMPLE



Acknowledgements and further reading

Other examples:

- <https://i-adopt.github.io/examples/index.html>
- <https://i-adopt.github.io/examples/EnvThes/22035.ttl.html>
- The associated turtle file can be seen here: <https://i-adopt.github.io/examples/EnvThes/22035.ttl>

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