The I-ADOPT Framework

RDA **I**nteroper**A**ble **D**escriptions of **O**bservable **P**roperty **T**erminology WG (I-ADOPT WG)

Core members:
Barbara Magagna, GO FAIR Foundation, NL
Gwenaëlle Moncoiffé, BODC, UK
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

In collaboration with

RESEARCH DATA ALLIANCE
I-ADOPT WG

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

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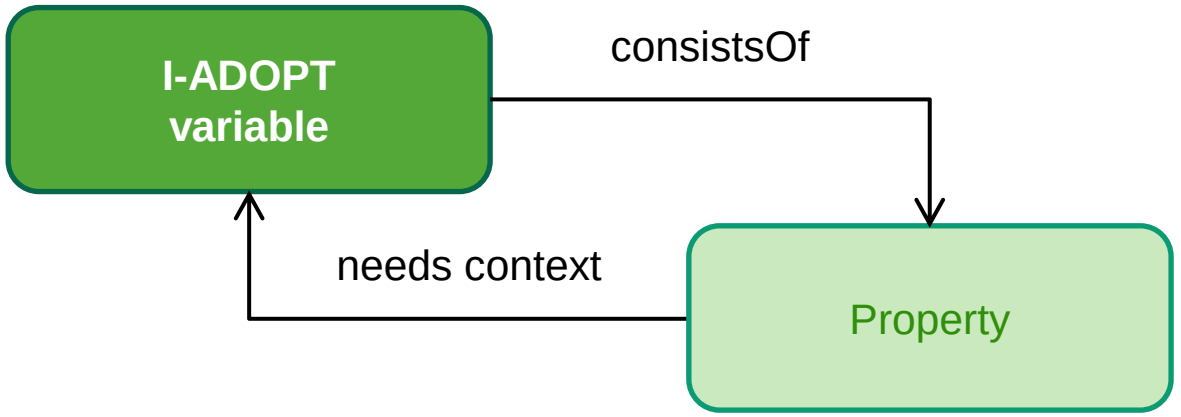
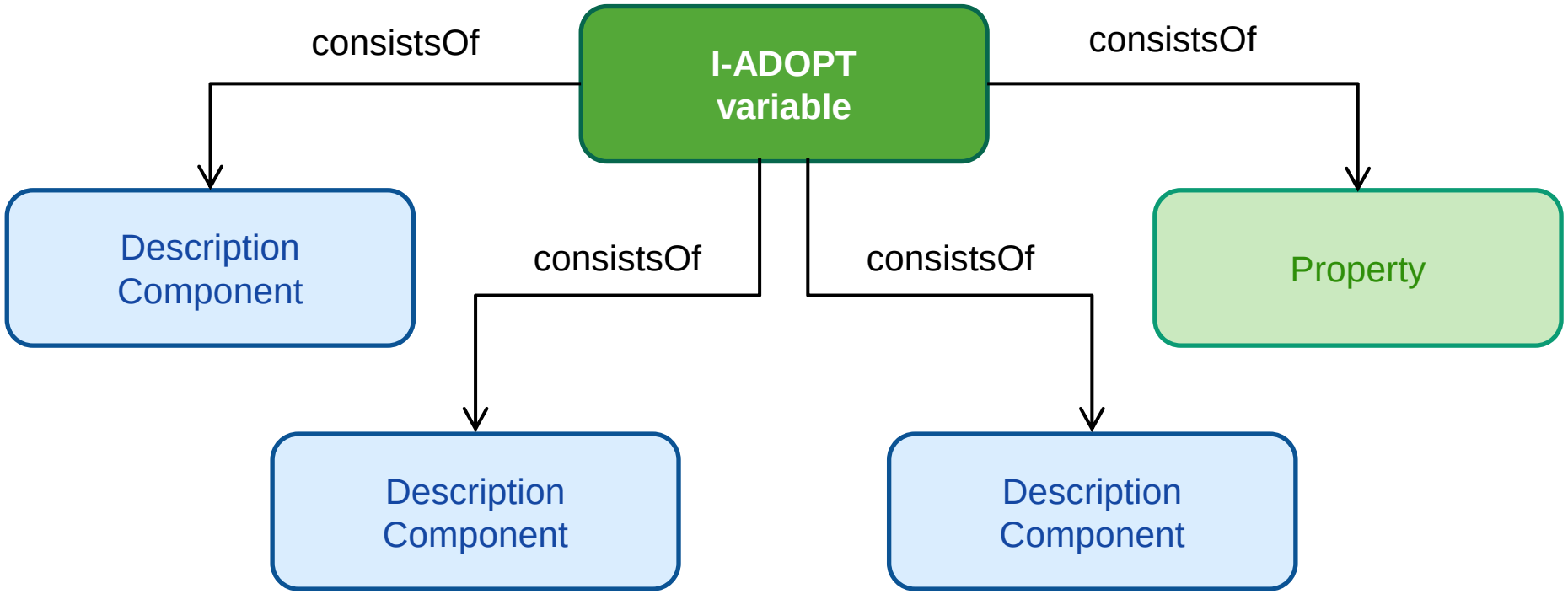
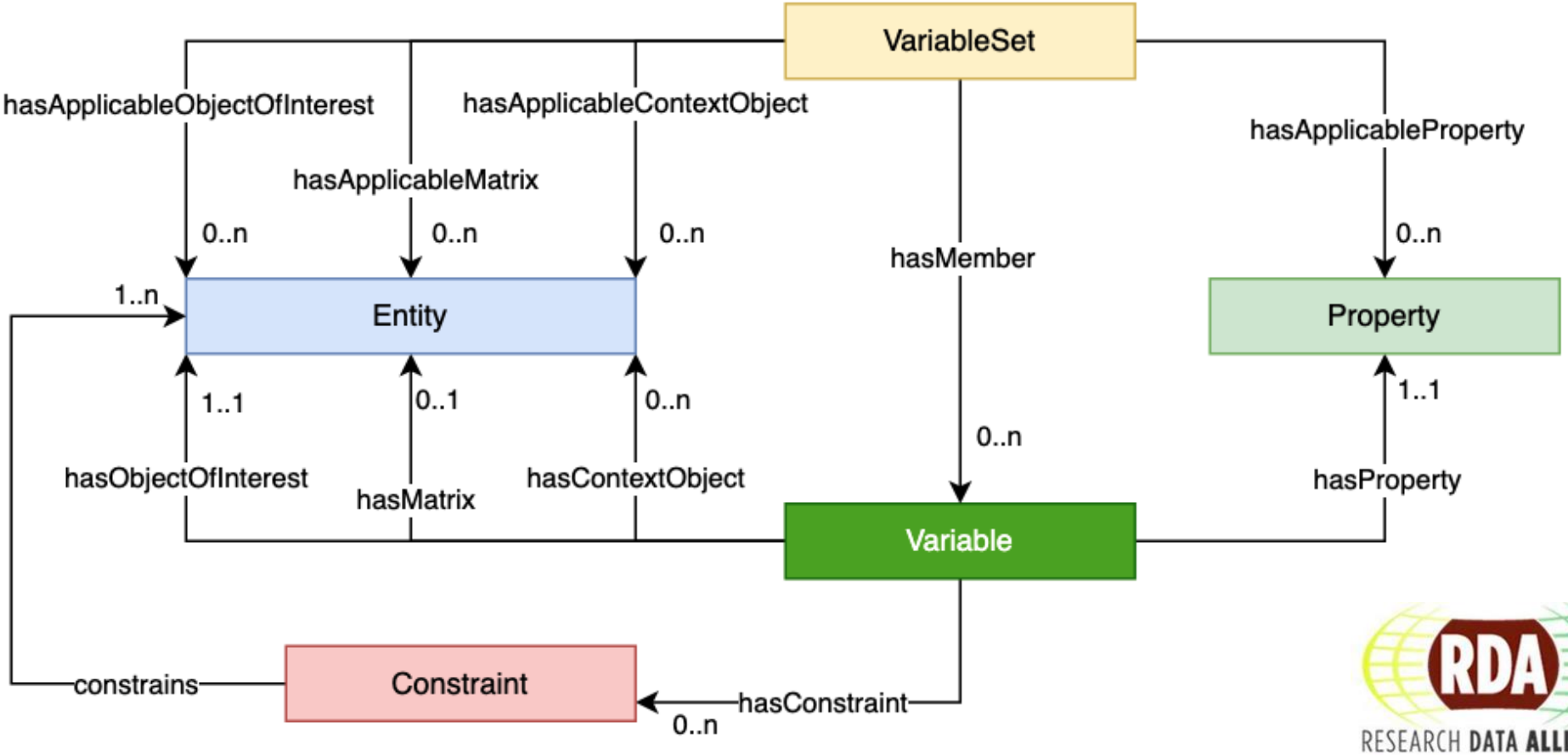
Contextualised properties -> I-ADOPT variables



I-ADOPT variable consists of various description components



The I-ADOPT Ontology



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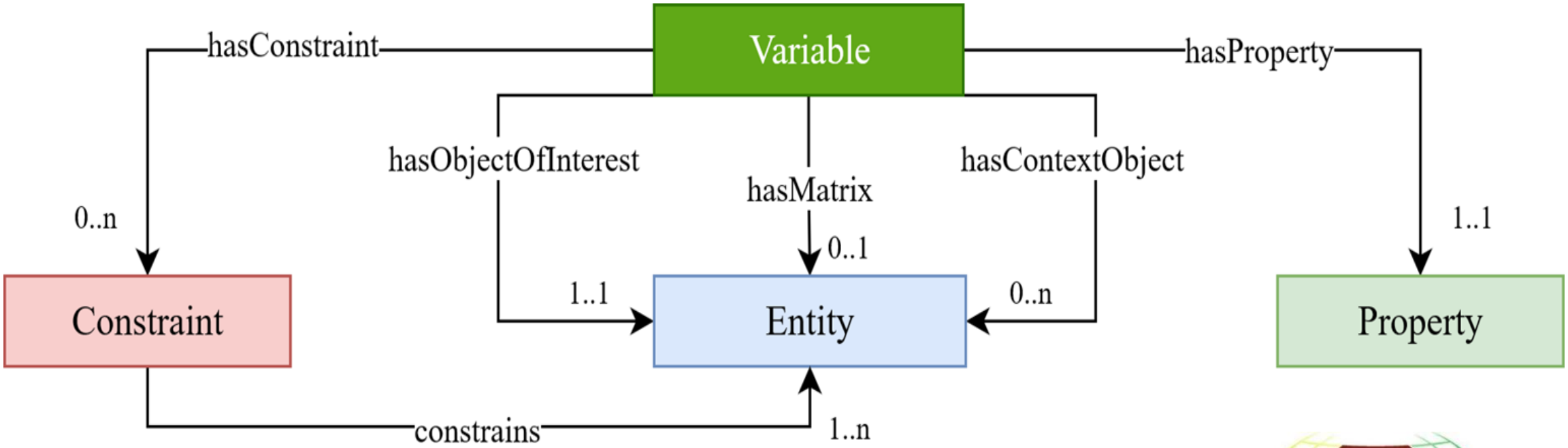
The I-ADOPT Ontology – core model



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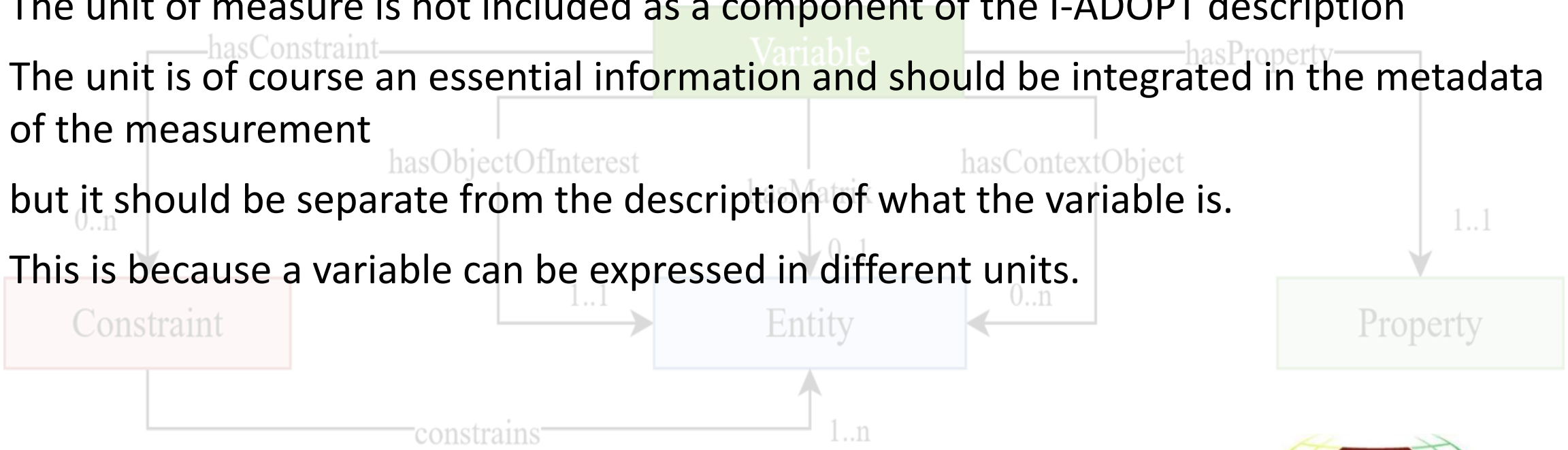
The I-ADOPT Ontology

- 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.



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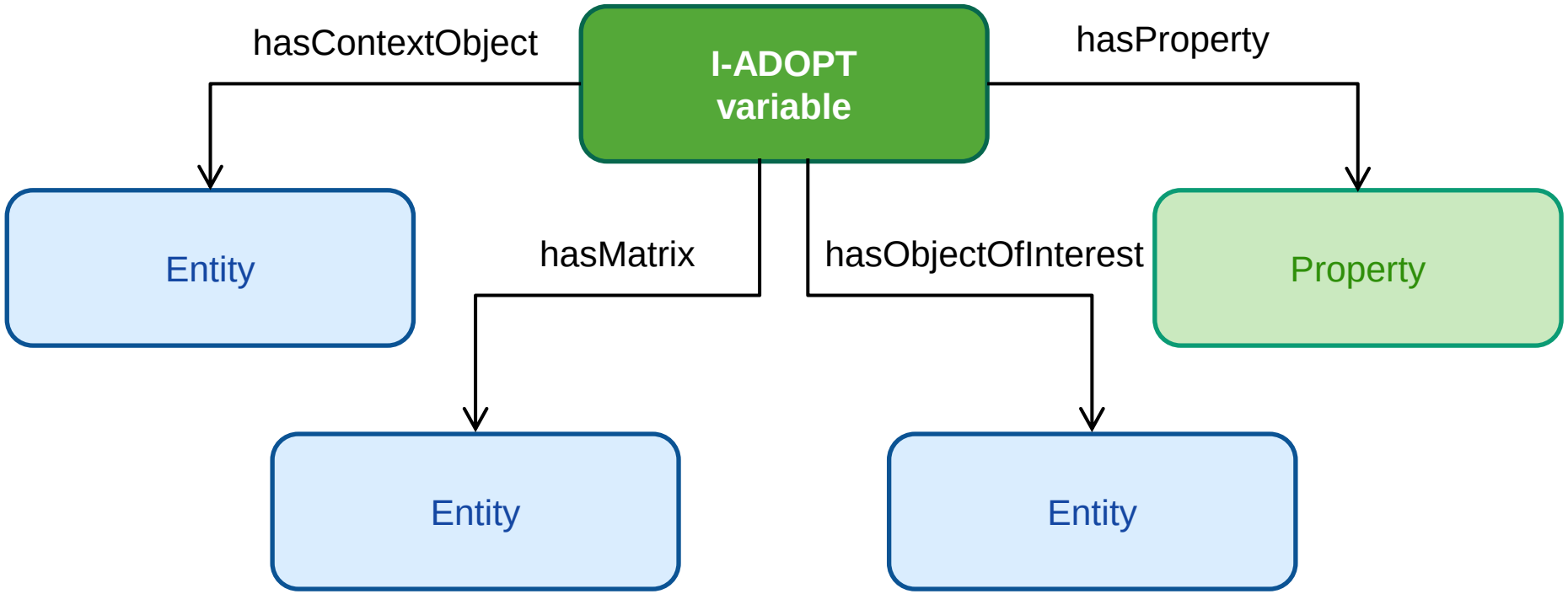
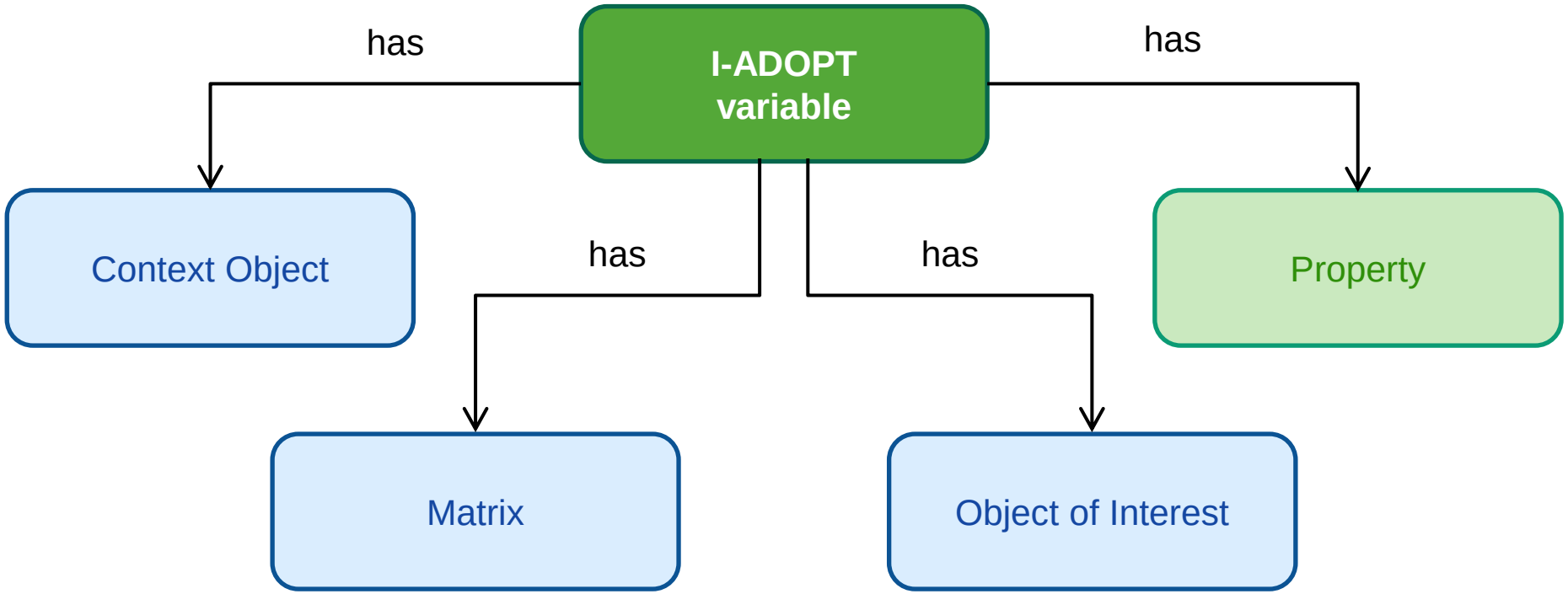
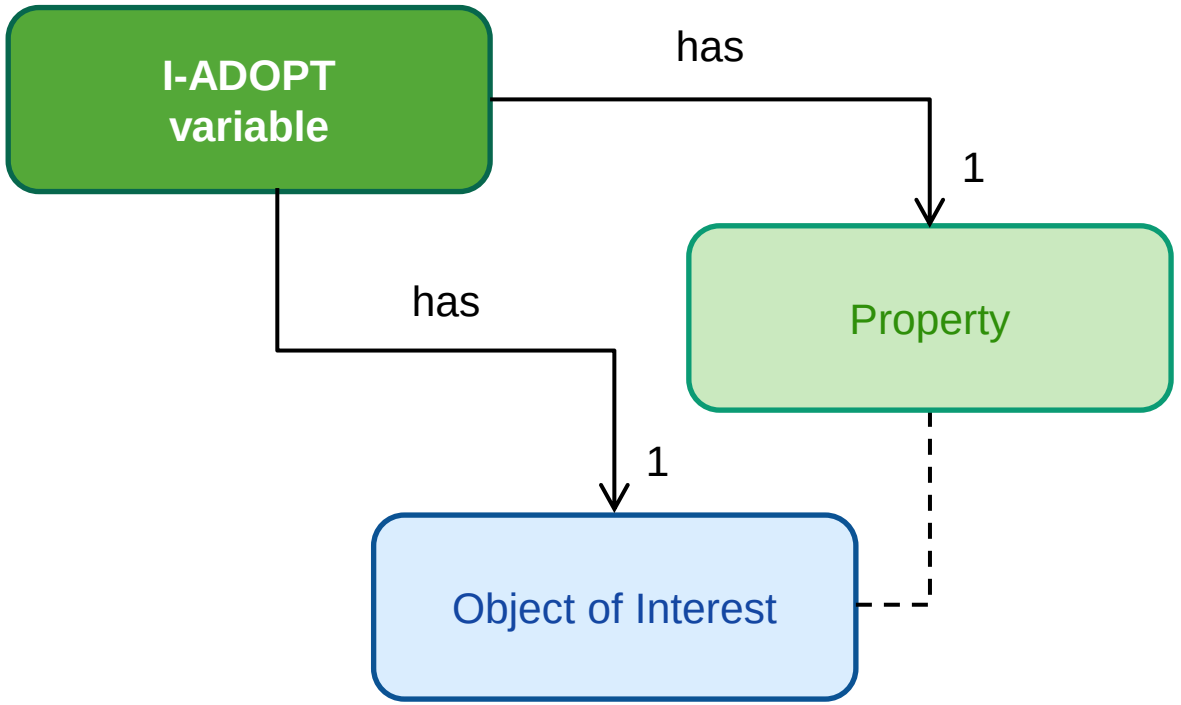
I-ADOPT ontology explained



I-ADOPT ontology simplified explanation

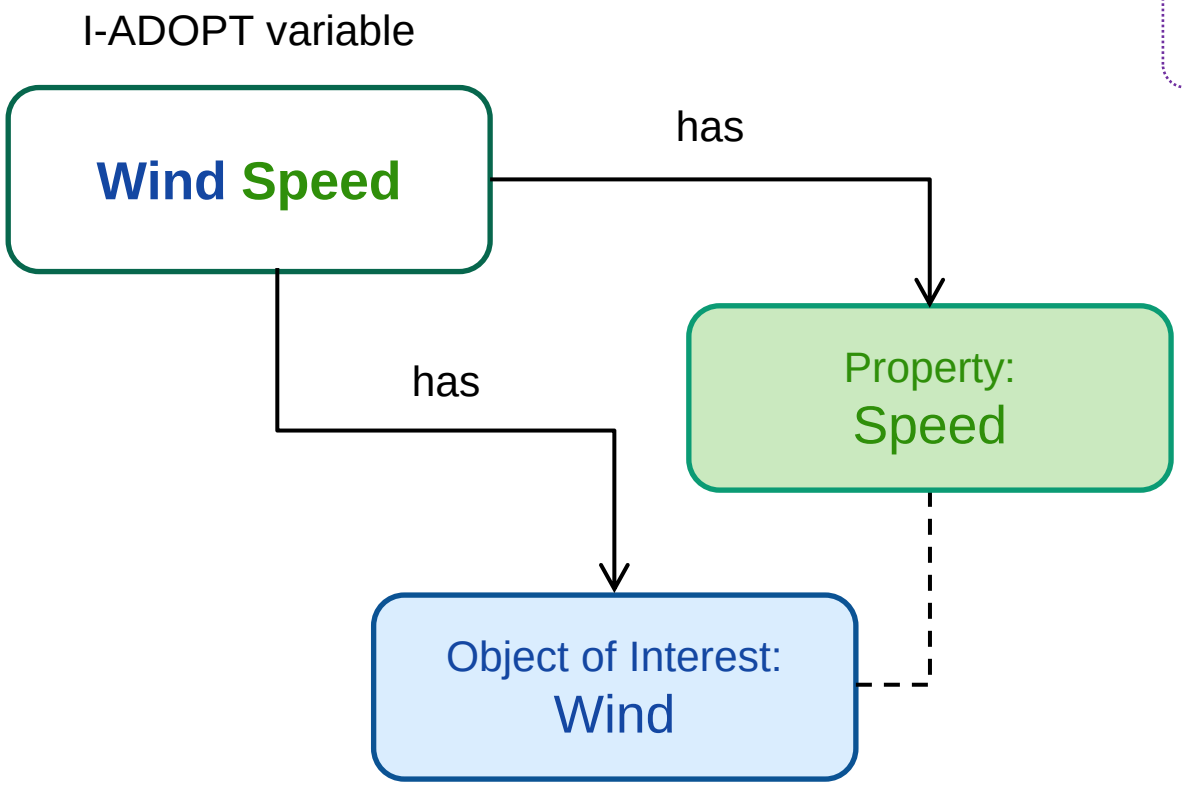


I-ADOPT ontology simplified explanation – minimal description

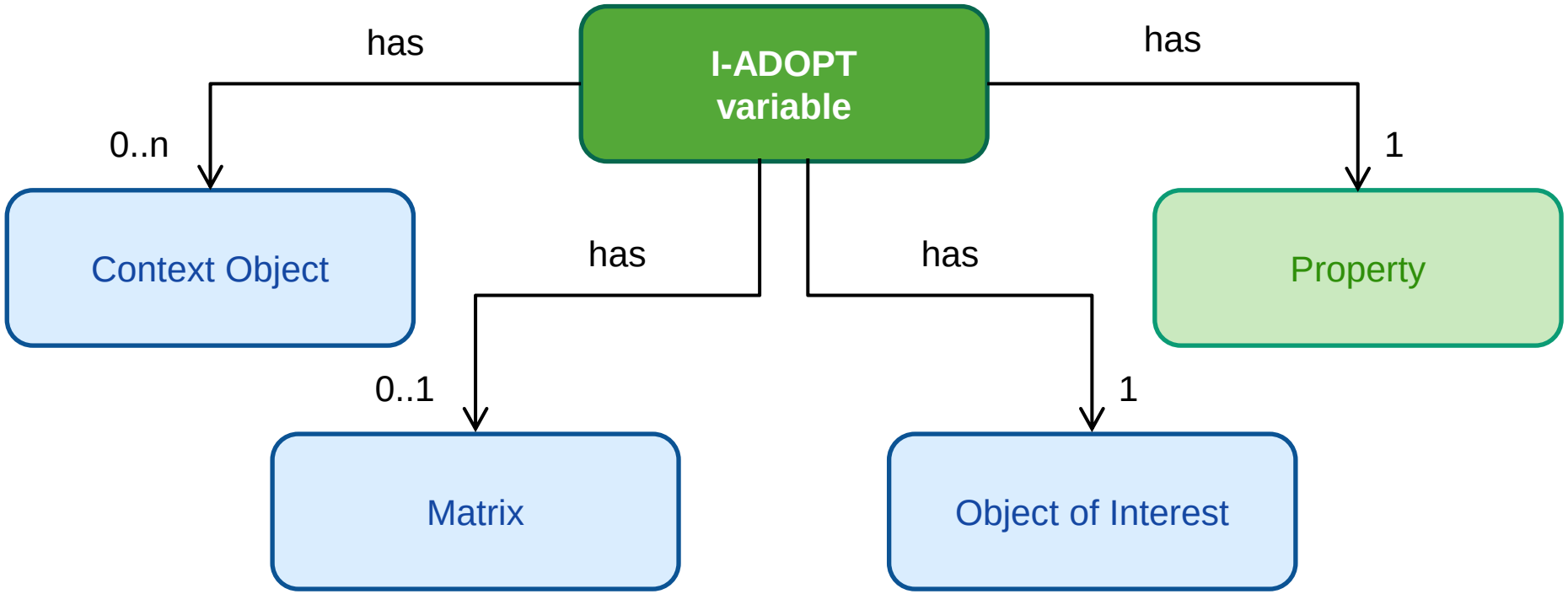


I-ADOPT variable – minimal description

EXAMPLE

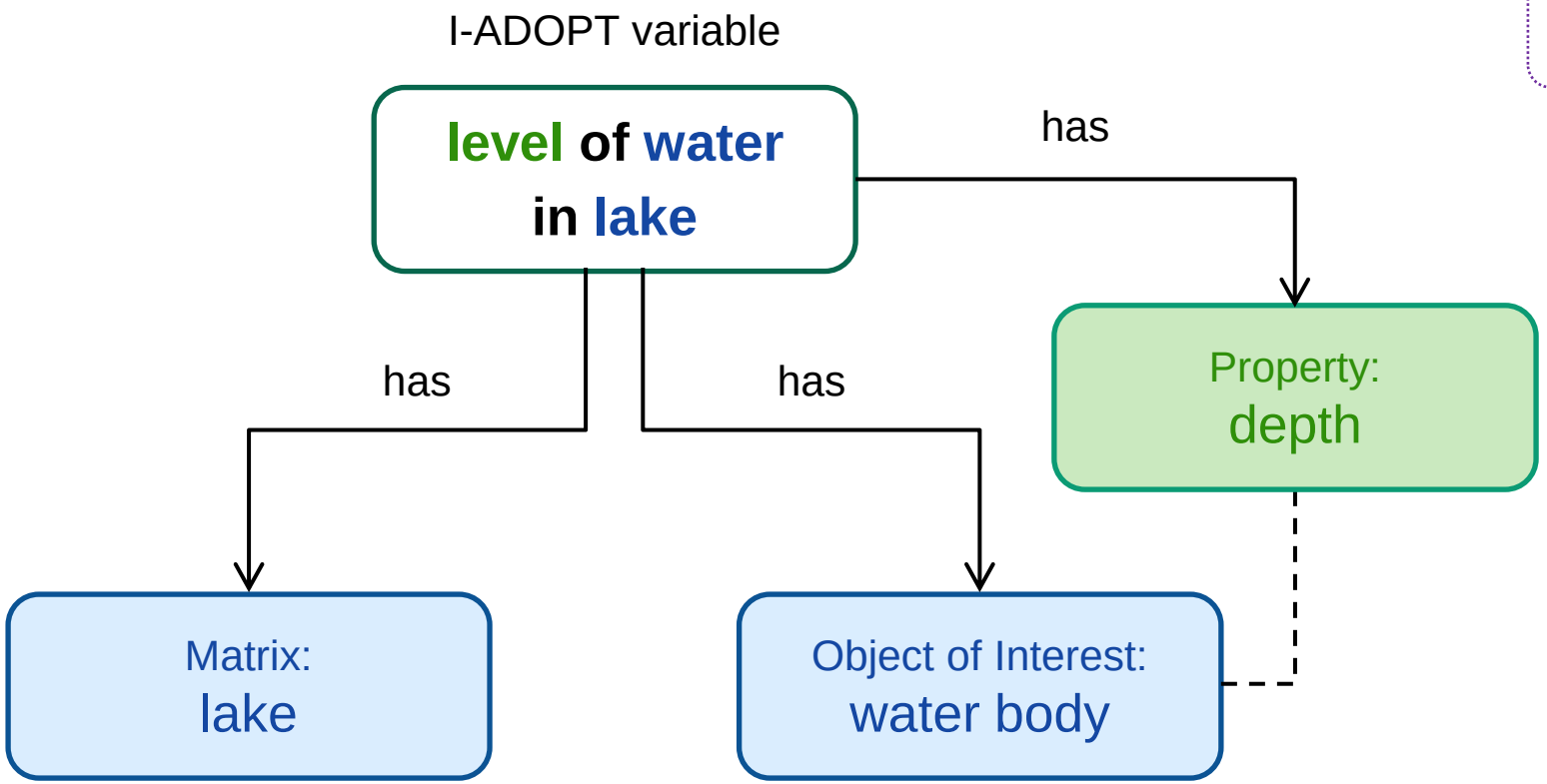


I-ADOPT ontology simplified explanation – extended description



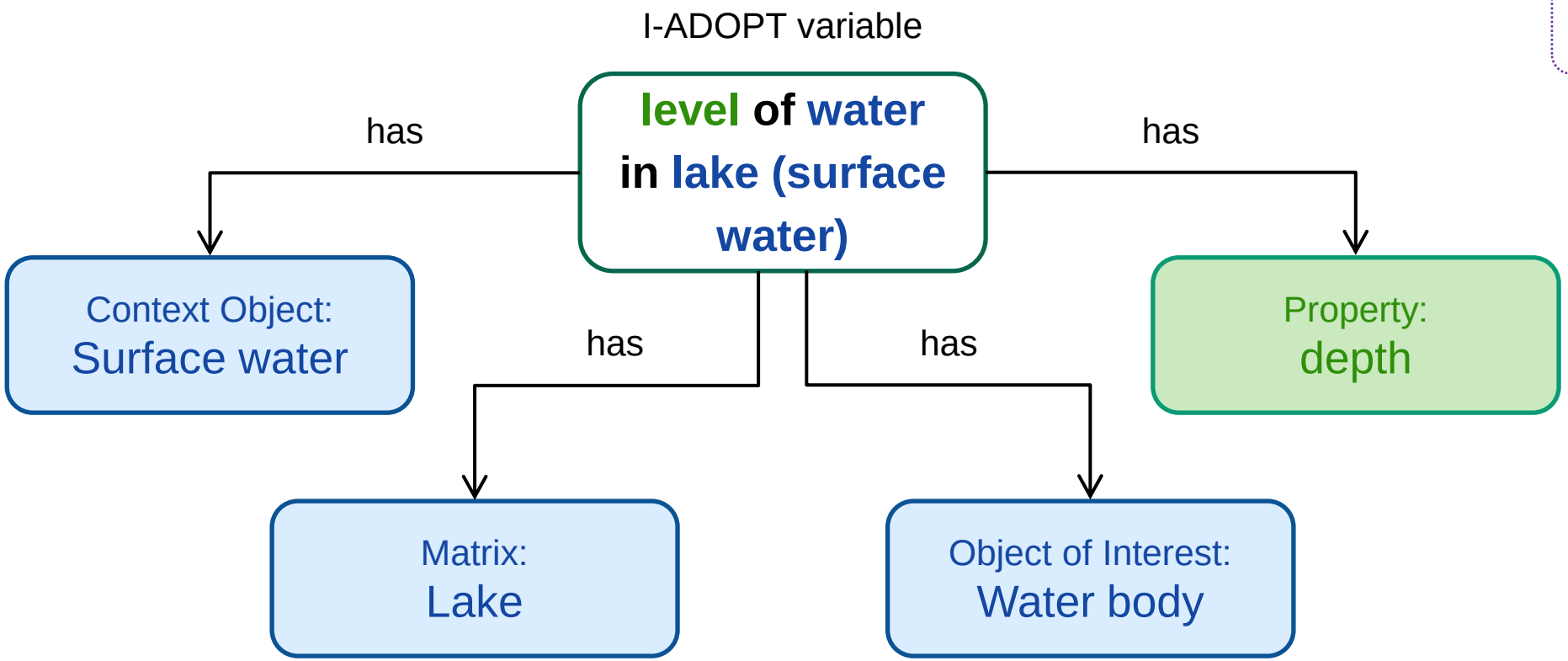
I-ADOPT variable description

EXAMPLE

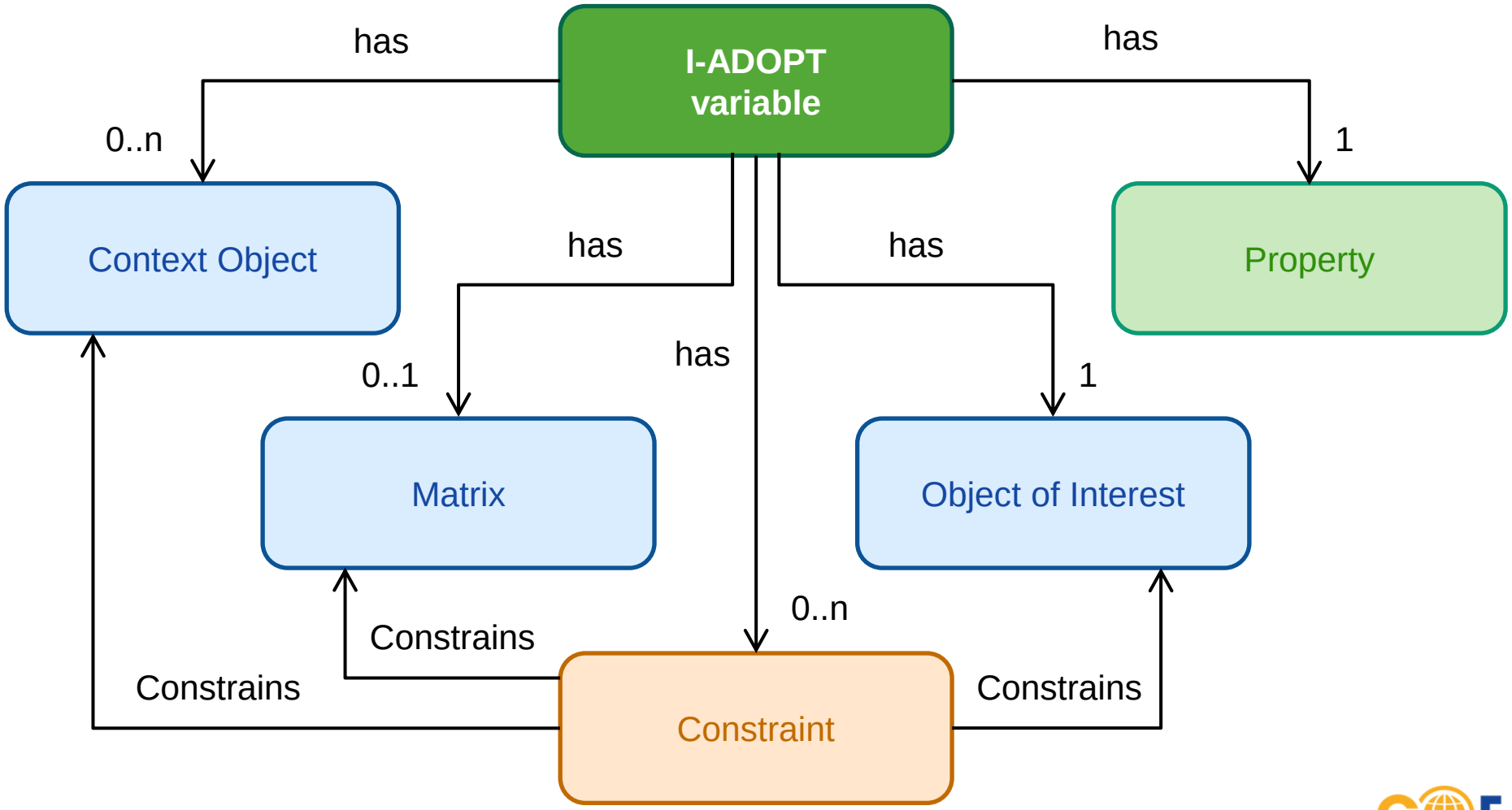


I-ADOPT variable description

EXAMPLE

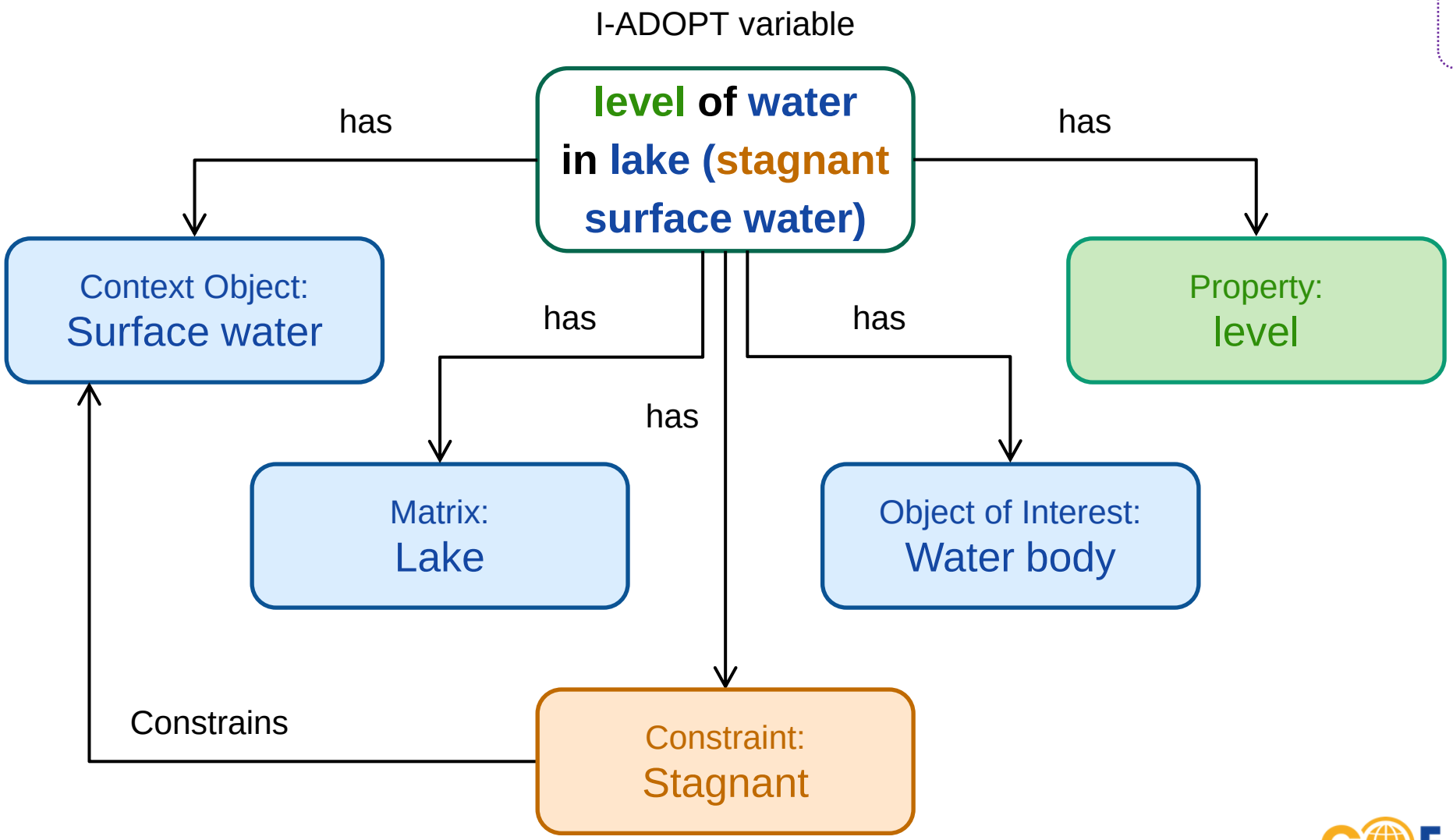


I-ADOPT (simplified) with constraints

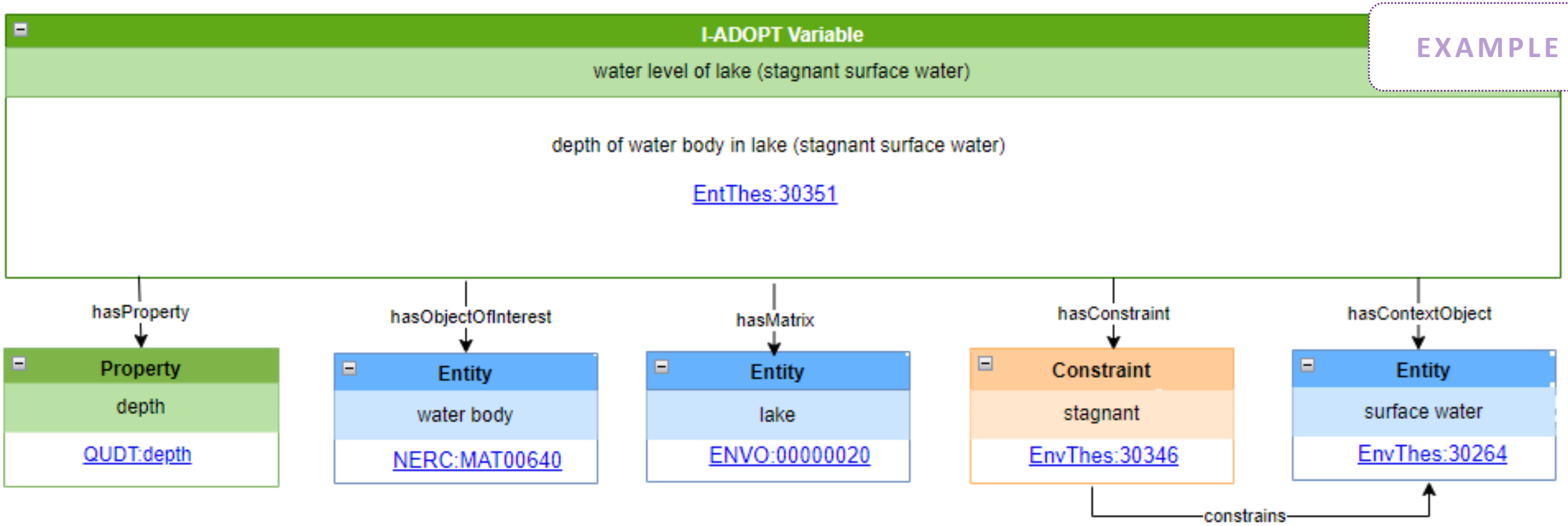


I-ADOPT variable description

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:

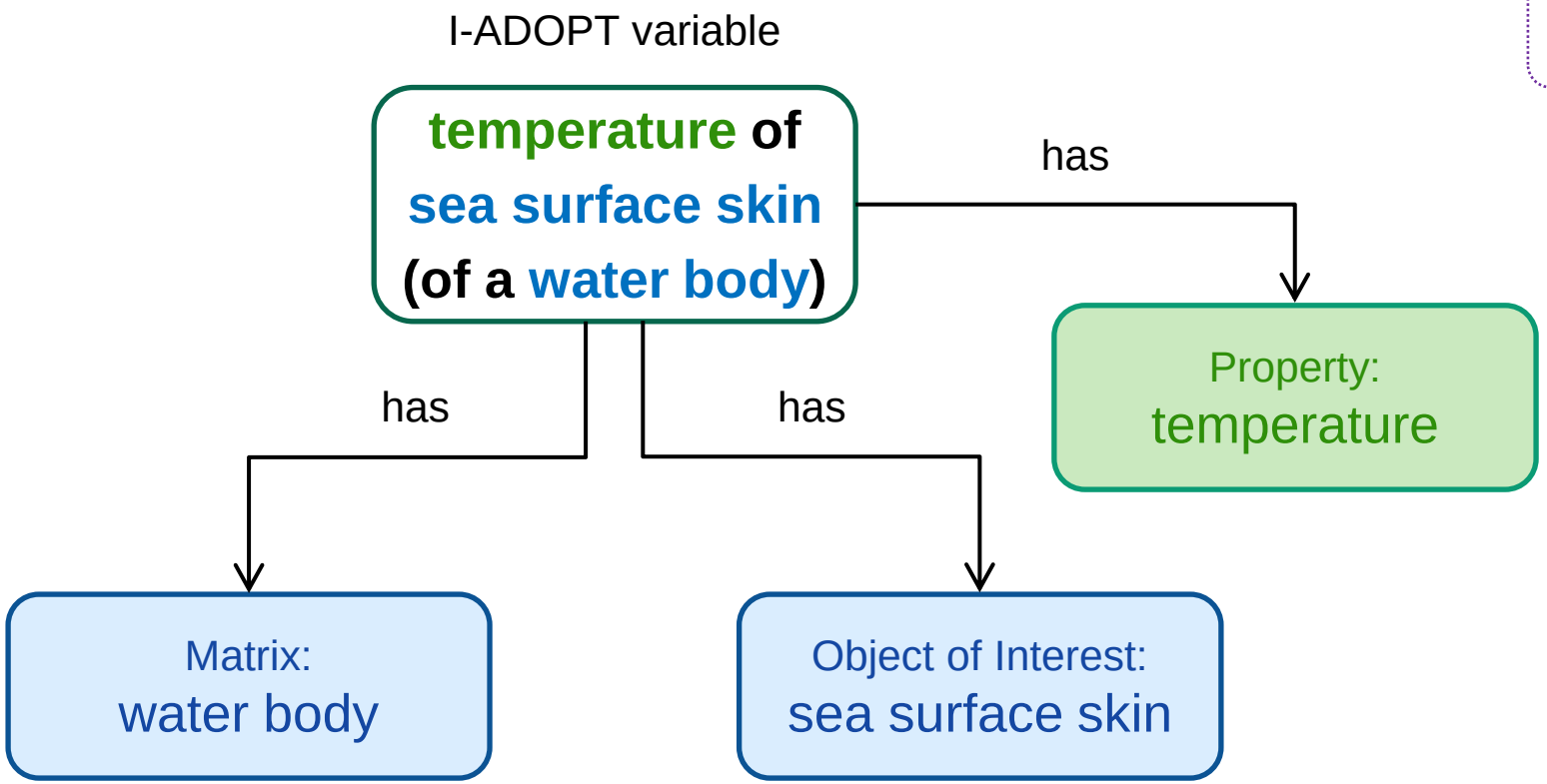
EXAMPLE

```
@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/variables/index.html
- https://i-adopt.github.io/variables/EnvThes/21579.ttl.html with the associated turtle file can be seen here: https://i-adopt.github.io/variables/EnvThes/21579.ttl

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