Terms and Conditions for *data use*

I agree to restrict my use of CORDEX model output for non-commercial research and educational purposes only. [1]

In publications that rely on the CORDEX model output, I will appropriately credit the data providers by an acknowledgement similar to the following: "We acknowledge..." [1]

You may extract, download, and make copies of the data contained in the Datasets, and you may share that data with third parties according to these terms of use. [2]

When sharing or facilitating access to the Datasets, you agree to include the same acknowledgment requirement in any sub-licenses of the data that you grant, and a requirement that any sub-licensees do the same. [2]

Data is non-transferrable (other than as permitted in the licence) and confidential in nature. [3]

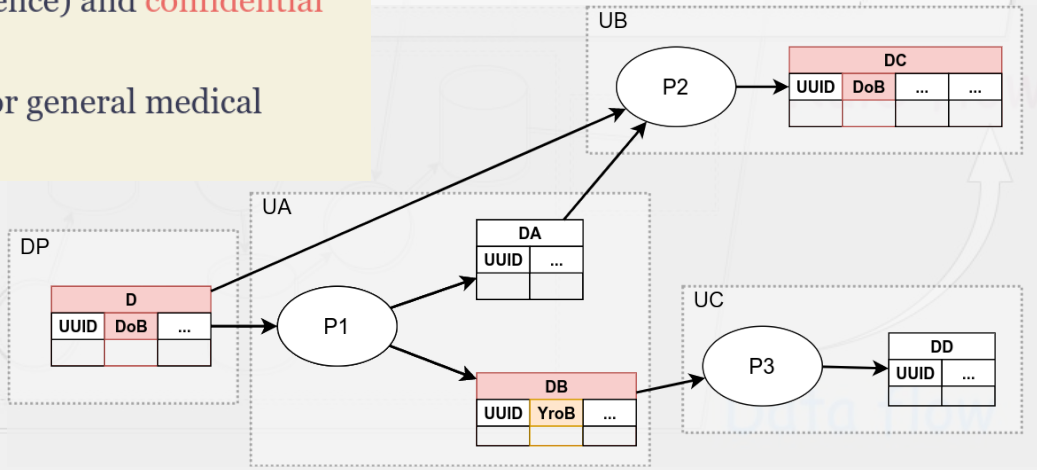
Data is not to be used to identify, contact or target patients or general medical practitioners. [3]

Automatically

check *compliance*

derive rules for *outputs*

...



In complex **multi**-institutional contexts
with **M**ulti-**I**nput-**M**ulti-**O**utput processes
and *decentralised* collaboration

Rui Zhao, University of Edinburgh, rui.zhao@ed.ac.uk

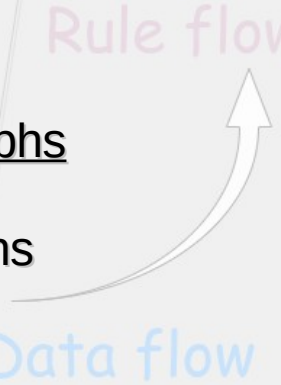
Dr.Aid (Data Rule Aid):
a formal framework to support data-use policy compliance for decentralized collaboration

Based on **formal** language:
- formal semantics
- *situation calculus* reasoning

Two types of *inter-operating* rules, for
- **data**
  - the data-use policy from upstream
- **process**
  - how the *process* changes the *data rules*

- **Ontology** in rules
  for inter-operation across institutions
- **Provenance** as *lingua franca*
  for different underlying systems
  CWLProv, S-Prov
- **Derive** rules for *outputs*
  for continuous / future data uses

Supports **obligations**
and **MIMO** process graphs
(=**DAG**s)
exceeds traditional solutions
for access controls
and linear pipeline



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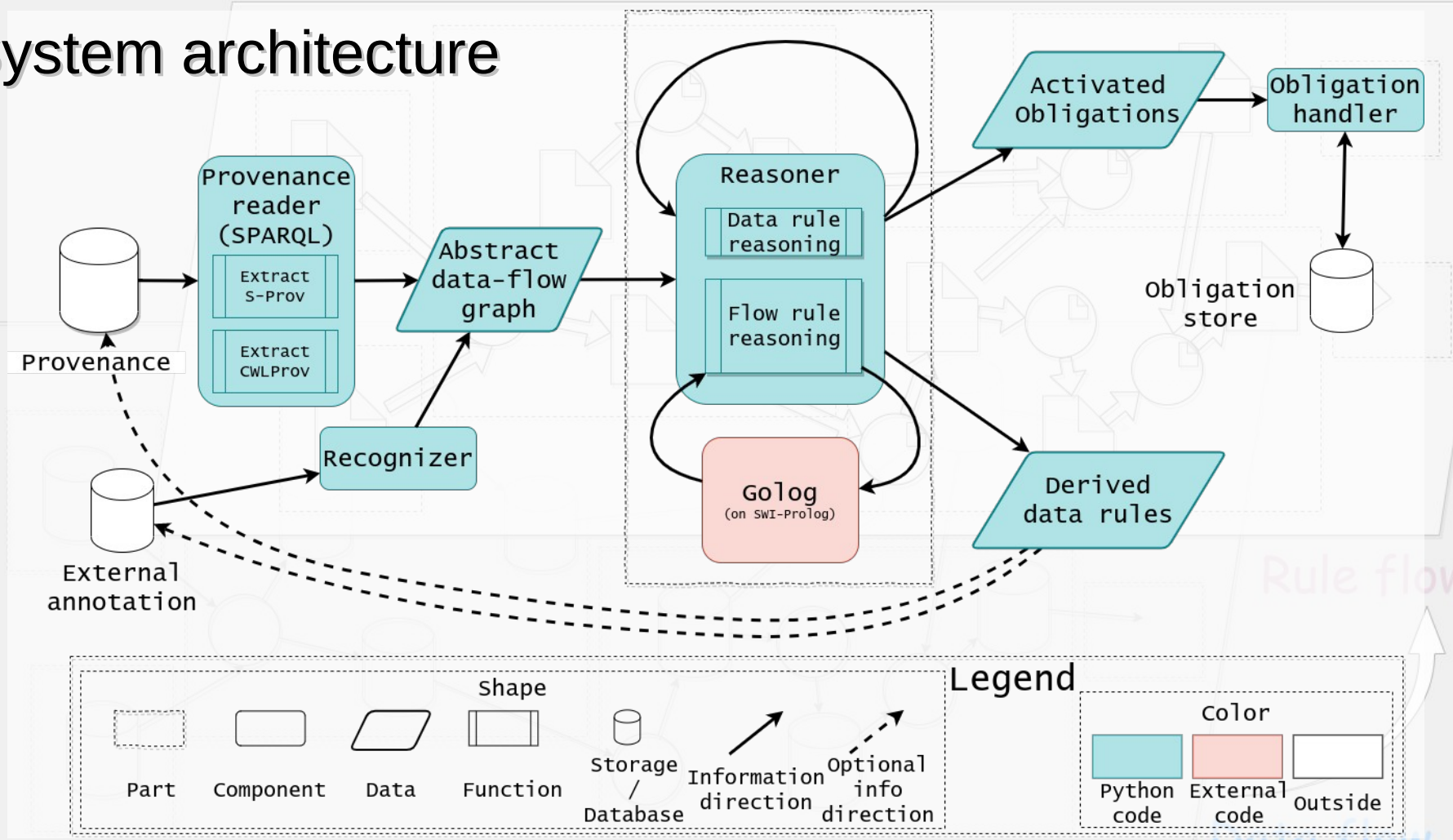
System architecture



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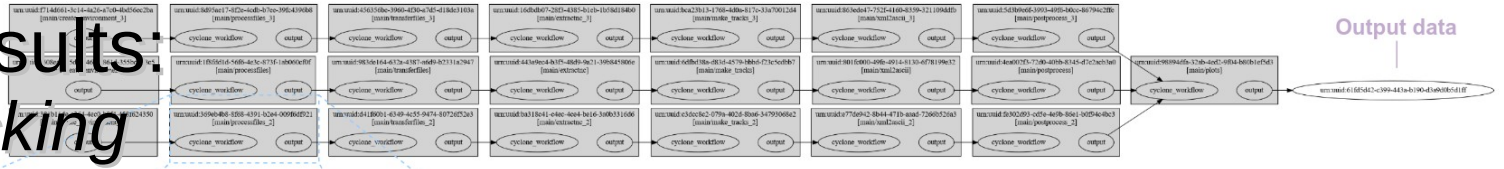
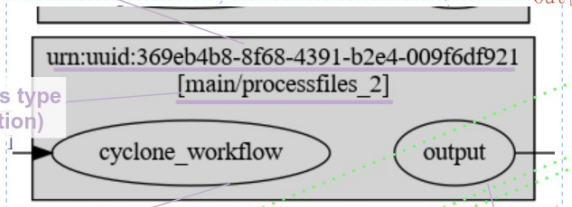
Example results: *Cyclone tracking workflow*

Out[5]:



Process ID

Out[7]:



Process type (function)

Input port

Finished Initialization

Output port

	Triggering process	Obligation
0	urn:uuid:d608ea63-5d92-46bb-861d-355bdb08c587	(Cite [CMIP6_GMD_special_issue(url http://www....
1	urn:uuid:d608ea63-5d92-46bb-861d-355bdb08c587	(Cite [CMIP6_output(url http://bit.ly/2gBCuqM)])
2	urn:uuid:f714d661-3c14-4a26-a7c0-4bd56ec2ba0d	(Cite [CMIP6_GMD_special_issue(url http://www....
3	urn:uuid:f714d661-3c14-4a26-a7c0-4bd56ec2ba0d	(Cite [CMIP6_output(url http://bit.ly/2gBCuqM)])
4	urn:uuid:381b11de-c264-4ec0-b9f4-458f624350e9	(Cite [CMIP6_GMD_special_issue(url http://www....
5	urn:uuid:381b11de-c264-4ec0-b9f4-458f624350e9	(Cite [CMIP6_output(url http://bit.ly/2gBCuqM)])
6	http://draid/ns/VirtualProcess/ab869295-9f77-4...	(Acknowledge [CMIP6_acknowledge(string We ackn...
7	http://draid/ns/VirtualProcess/ab869295-9f77-4...	(Include [CMIP6_model_provider_instruction(str...
8	http://draid/ns/VirtualProcess/ab869295-9f77-4...	(Report [CMIP6_report_url(url https://cmip-pub...
9	http://draid/ns/VirtualProcess/ab869295-9f77-4...	(Include [CMIP6_refer_instruction(string Refer...

Out[6]:

```
{rdflib.term.URIRef('urn:uuid:d608ea63
ecial_issue590.html)]),
  (Cite [CMIP6_output(url http://bit.l
 rdflib.term.URIRef('urn:uuid:f714d661
ecial_issue590.html)]),
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ecial_issue590.html)]),
  (Cite [CMIP6_output(url http://bit.ly/2gBCuqM)])],
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  (Include [CMIP6_model_provider_instruction(string Include in publications a table listing the models and institutions that provided model output for research use. In this table and as appropriate in figure legends, use the CMIP6 “official” model names viewable as an html rendering of the CMIP6 source_id controlled vocabulary and an html rendering of institution names recorded in the CMIP6 institution_id controlled vocabulary)]),
  (Report [CMIP6_report_url(url https://cmip-publications.llnl.gov/view/CMIP6/)]),
  (Include [CMIP6_refer_instruction(string Refer to the collection of CMIP6 models as the “CMIP6 multi-model ensemble” (or similar) and use, as appropriate, phrases like “CMIP6 multi-model [archive/output/results/simulations/dataset/…]” to describe CMIP6 contributions and products.)])]}
```

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Example results: *Cyclone tracking workflow*

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